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Feature

Management In the Corps of Engineers

By General Sturgis

•

On The Cover

MAJOR GENERAL Samuel D. Sturgis, Jr., graduated from the U.S. Military Academy at West Point in 1918.

His appointment as Chief of Engineers, to succeed Lieutenant General Lewis A. Pick, was announced effective 1 December 1952.

General Sturgis rose through all grades and unit commands from Second Lieutenant to Major General and his career is distinguished by the fact that he has held every command that an Engineer officer might typically hold from platoon to a division; from [illegible] Engineer to Communications Zone Commander; and from Project Engineer in civil works to Chief of Engineers.

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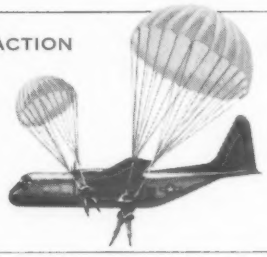

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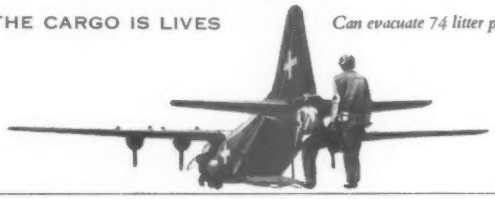

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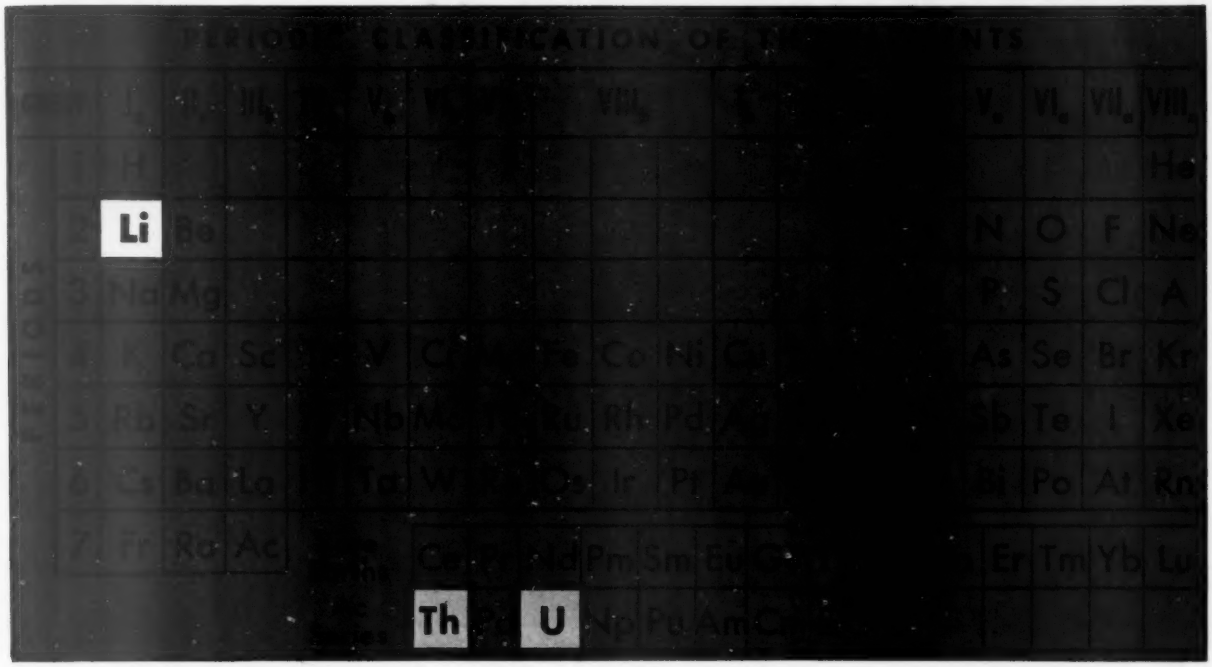

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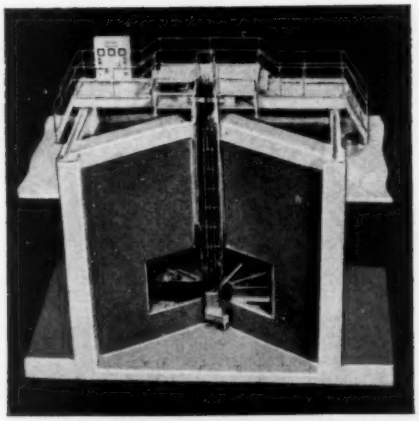

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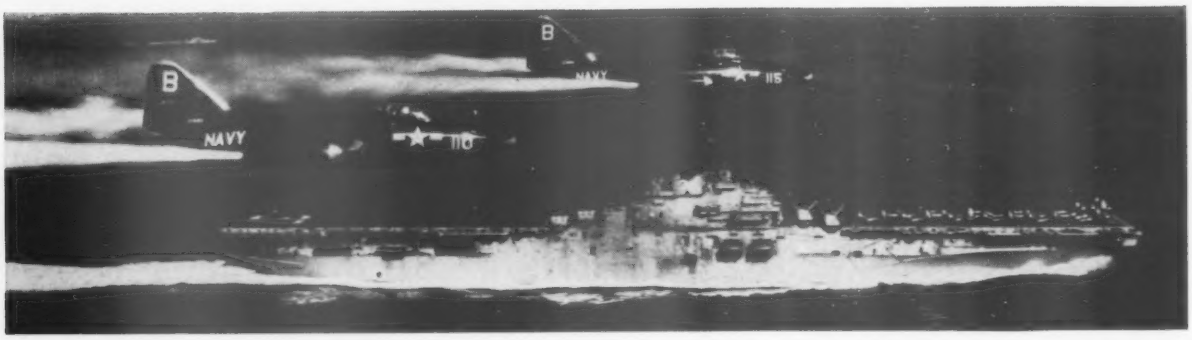

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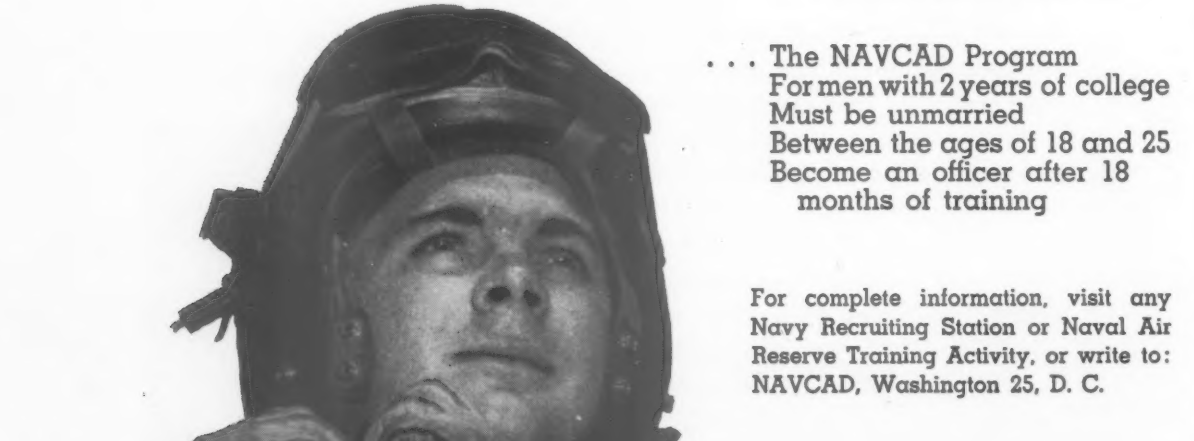

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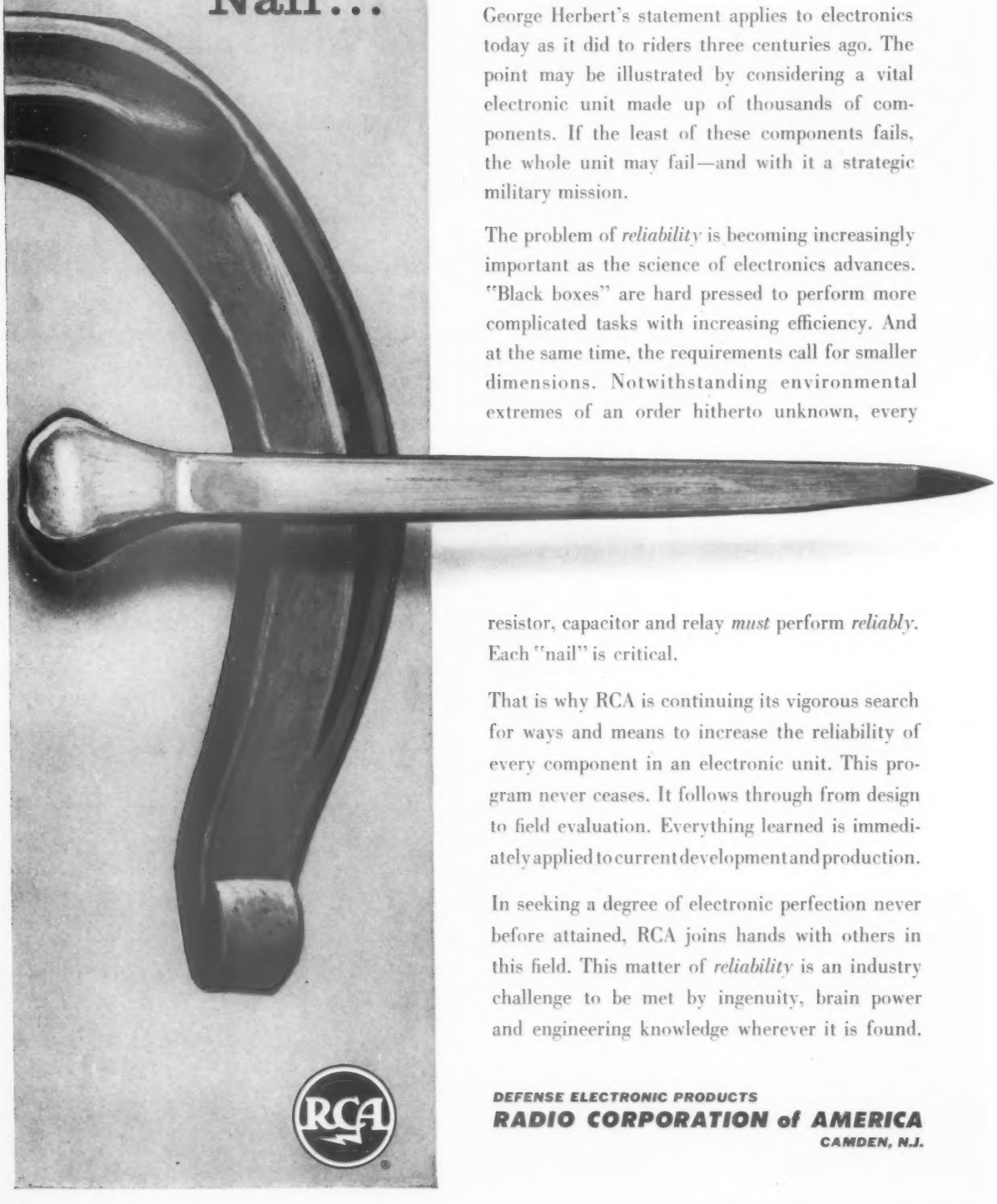
"For Want of a Nail..."



For want of a nail the shoe is lost,
for want of a shoe the horse is lost,
for want of a horse the rider is lost.

George Herbert's statement applies to electronics today as it did to riders three centuries ago. The point may be illustrated by considering a vital electronic unit made up of thousands of components. If the least of these components fails, the whole unit may fail—and with it a strategic military mission.

The problem of *reliability* is becoming increasingly important as the science of electronics advances. "Black boxes" are hard pressed to perform more complicated tasks with increasing efficiency. And at the same time, the requirements call for smaller dimensions. Notwithstanding environmental extremes of an order hitherto unknown, every resistor, capacitor and relay *must* perform *reliably*. Each "nail" is critical.

That is why RCA is continuing its vigorous search for ways and means to increase the reliability of every component in an electronic unit. This program never ceases. It follows through from design to field evaluation. Everything learned is immediately applied to current development and production.

In seeking a degree of electronic perfection never before attained, RCA joins hands with others in this field. This matter of *reliability* is an industry challenge to be met by ingenuity, brain power and engineering knowledge wherever it is found.

DEFENSE ELECTRONIC PRODUCTS
RADIO CORPORATION of AMERICA
CAMDEN, N.J.

by Lieutenant General S. D. Sturgis, Jr.
Chief of Engineers
U. S. Army

Management in the Corps of Engineers

THE PURPOSE of this article is two-fold: first, to indicate briefly the scope and complexity of the Engineer mission, and second, to outline the methods we use to manage our vast enterprise effectively and economically.

During this Fiscal Year '56 the Corps of Engineers will obligate more than two billion dollars, 86 per cent of which will be for civil and military construction and 14 per cent for many thousands of other items. Annual obligations since the start of the Korean conflict have been at about this rate.

The field of Corps of Engineers activities extends to every state of the union, and from Johnson Island to Alaska, Greenland, Iceland, Saudi Arabia, the Azores, and Puerto Rico. We build everything from sidewalks to heavy bomber runways, from a sentry box to a complete hospital-community, from a dirt levee to a huge multi-purpose dam across the Columbia River. We buy millions of dollars worth of Engineer supplies and equipment from American industry; compile and print millions of maps for the Armed Forces; carry on an extensive and vital research and development program including a portable nuclear power plant; train thousands of officers and enlisted men in the techniques of combat and of supporting the Army and Air Force; acquire and manage all the real estate required by the Army, Air Force, and Atomic Energy Commission; and use the services of some 55,000 Corps of Engineers civilian employees plus numerous contractors, architect-engineers and other construction experts.

What might appear at first glance to be a wide variety of unrelated missions is actually a coordinated and cohesive whole through which the Corps provides complete Engineer support to our military efforts and at the same time performs a diverse, complex and valuable Civil Works mission. The Management task within the Corps—of assuring effective, economical performance of its dual mission—is thus a most responsible and heavy one.

The key to our whole management system is our organization which has been developed since 1822 on the principle of decentralizing responsibility and delegating authority to the lowest level possible, consistent with adequate control. Decentralization by delegation of authority and responsibility is not only the best means of handling a program as large as ours—it is the only feasible way. It is the basis for past success and the means through which a continued source of experienced leaders will be developed.

The current organization of the Corps of Engineers is shown in Chart I. Each block on that chart is headed by a commander—a highly competent, experienced, and qualified officer or civilian—who has the responsibility and authority to direct the work in his office or area. I require each commander to comply with three basic principles in managing his operation:

First, and foremost, he must be sure that his *operations are effective*. Whatever his task may be, I ex-

THE LOW-COST MOTOR GRADER
THAT OFFERS
more of everything...

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FOUR FORWARD SPEEDS — to 25.6 mph
REVERSE SPEED — to 3.3 mph

DIESEL ENGINE
BRAKE HP — 50
WT (bare) — 9,350 lb
FOUR FORWARD SPEEDS — to 25.2 mph
REVERSE SPEED — to 3.2 mph

Allis-Chalmers model D

Here is a versatile machine for most any blade or shovel job in any season. With its blade the Allis-Chalmers Model D motor grader helps build roads and airstrips, then maintains them. It levels areas for new camp sites, cuts ditches, windrows snow . . . handles many other grading and light construction jobs.

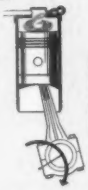
With rear-mounted hydraulic shovel, the Model D loads bulk materials from stockpiles, removes windrowed snow from curbs and parking areas, loads excess sod and dirt stripped from ditches and road shoulders. Other attachments such as scarifier, shoulder maintainer and windrow eliminator add still further to its versatility . . . makes the Model D an efficient performer the year-round.

CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

more PRODUCTION-BOOSTING FEATURES

ROLL-AWAY moldboard *rolls* the load instead of pushing it to move more dirt, use less power.



Choice of Allis-Chalmers engines, 50-hp POWER-CRATER gasoline engine or 50-hp diesel engine with "follow-through" combustion.

One-piece tubular main frame absorbs strains and stresses, cuts servicing and downtime.

Tandem drive provides more driving power, better traction, better stability. Rides easier, blades more smoothly.

All-round operator comfort is yours with convenient controls, full visibility, roomy platform.

Hydraulic blade lift insures accurate blade control. Cylinders are over circle for precision blade work.

OPTIONAL FEATURES

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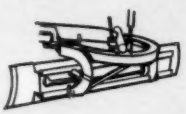
Leaning front wheels with heavy-duty front axle provide better control in close-quarter work.



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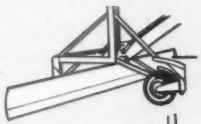
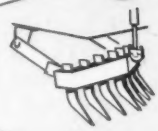
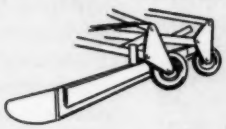


Shoulder maintainer provides safe, one-pass operation.



Scarifier mounts under heavy end of grader for maximum ground pressure.

Snowplows extend Model D usefulness through the year.



One-pass windrow eliminator makes clean-up operations faster, easier.

Stand-up cab completely enclosed. All-steel or lightweight models.

Hydraulic mower operates from 45-degree below horizontal to vertical.

For greater operator comfort and convenience

★ **Cab heater** ★ **Windshield wiper**

★ **Defroster**

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more SATISFIED USERS

Since its introduction in 1945, thousands of satisfied owners have *proven* the usefulness and ability of the Model D on all kinds of construction and maintenance.

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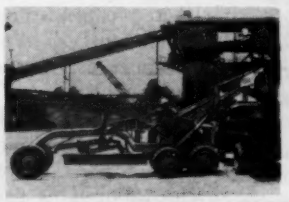
CITY MANAGER—"It gives us big-time performance with minimum investment."



CONTRACTOR—"I believe it has made many times what it cost me."

LANDSCAPE CONTRACTOR—". . . has power to spare and will work in extremely close quarters."

STREET SUPERINTENDENT—"This machine is an operator's dream."

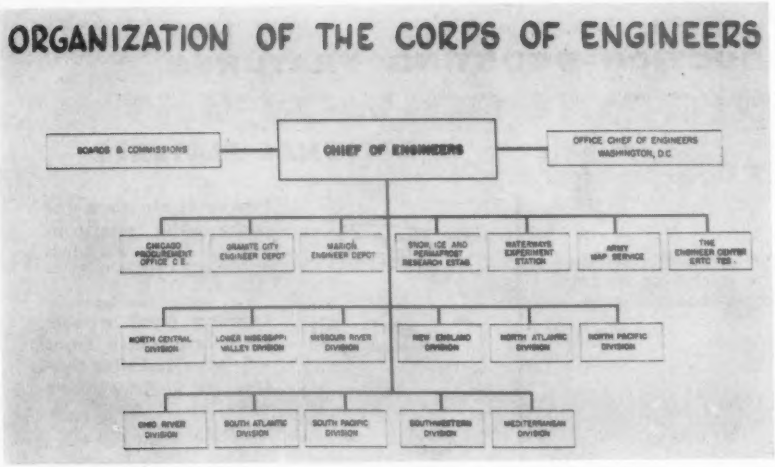


Chart 1

pect him to get it done—on time, right, and within available funds. His major and primary effort must be pointed toward the planning and management of his resources to accomplish this purpose. This is not always a simple task. On the contrary, many of our missions are complex endeavors involving many interests, many organizations, many contractors, many producers, and frequently, new techniques. All these factors must be coordinated and the whole effort time-phased to produce a completed facility or item and get it into use at the time it is needed.

The second requirement I make of each commander is to *get the job done economically*. He must make sure that his plans and specifications describe a facility that is adequate, but not gold plated; that he has the right number of men on the job at the right time; that his materials are ordered sufficiently in advance to permit use of more economical transportation and handling methods; that out-of-phase components do not delay the work; and that job plans will permit economical construction methods. His economy criteria must be in terms of the needs of the job being done, and nothing else; and all his operations must be planned with a zealous desire to conserve the funds and resources made available to him.

Third, I require each commander —and all the managers and supervisors under him — constantly to seek, find, and install new methods wherever they will *improve operational efficiency*. Each responsible head must constantly question whether every technique being used and every practice being followed is still the best that is available for the task at hand. If advancing technology, improved materials, or better equipment has outmoded some method or procedure—tried and true though it may have been in the past—it must be discarded promptly. Change is characteristic and fundamental; no organization can remain static; it must either progress or die. Improvement of operations is a responsibility of command in the Corps of Engineers, a responsibility that I have placed on every one of our supervisors at every level of our organization. And it is to them that I look for results. Thus the same people who are responsible for performing our operations are also responsible for improving the methods by which those operations are performed.

Within this organizational framework of decentralized command, there are in use a number of resultful management techniques to assist in accomplishing our program. While most of these techniques have been used by forward-looking businesses for years, some were pioneered in the Army by the Corps of Engineers and some may even be unique to the Corps since they have been tailored to fit our particular needs. All are employed, however, to do just one thing: to get the job done, right, economically, and on schedule.

The broad management plan that the Corps uses today to assure top performance from our financial resources dates back to our adoption in 1917 of a Corps-wide *cost accounting system*. This was before the Federal Government had organized itself to handle its growing financial structure. Neither the General Accounting Office nor the Bureau of the Budget was then in existence to guide the development of our system, these offices being established by the Budget and Accounting Act of 1921. Our cost accounting system was the first such application to Army activities. We have successively improved it since adopting it, keeping pace with the growth of cost accounting as a tool of industrial management.

The second stage in the development of broad financial controls came in 1921 when we revised our budget procedures and adopted what today is known as a *performance budget*. Performance budgeting, as we apply it to Civil Works, for example, embodies these principles: 1. All funds required for a specific item of work are requested in a single budget item; 2. All costs are applied to that work; and 3. Actual costs are held within budget amounts. We control our performance budget through detailed advanced planning formalized in a program as, for example, our Civil Works six-year program. This program accomplishes the following five objectives: 1. It establishes priorities for work; 2. Phases the various projects with relation to each other; 3. Develops the schedule for construction; 4. Groups projects by types of work and geographical areas; and 5. Forms the basis for the annual budget. Thus, our budgeting is not at all high-class "guesstimating", but on the contrary is the result of a well-thought-out, tested, *engineering plan* for accomplishment of work.

We took the third step in 1925 when we formalized an *internal audit program* to implement the changes we made at that time in our cost accounting system and to insure uniform compliance with laws, government regulations and directives. We have of course developed our auditing to keep pace with the evaluation of our financial management system and we now include many commercial-type audits covering cost and fiscal accounts, property accounts, leave and retirement, non-appropriated

funds, recreational leases, procurement, cost-type contracts, and many others.

In 1934 we established the fourth major element in our overall plan, *industrial fund accounting*, known in the Corps as the revolving fund, to take over ownership of the 30 million dollar plant investment at that time. This fund is authorized by Congress and now totals 125 million dollars in plant, equipment, warehouse stocks, accounts payable, and accounts receivable. Through this fund various services are "bought" and "sold". Every project that buys from the fund is charged for the services it receives, and the fund is reimbursed for these services from project funds. The principles embodied in the "plant account" we established 22 years ago are now being promoted throughout the Army as the "Army Industrial Fund" concept.

Also in 1934, we introduced the fifth phase, *financial property accounting*, an essential element to operating under a revolving fund. Through accounting for property in terms of dollars as well as items we gain complete financial control over inventories, and thus assurance that we do not unnecessarily tie up large sums of money in warehouse stocks. Financial property accounting also reflects the overall investment in construction plant and provides the essential data for computation of plant rental rates.

In sum, these are the basic elements of our financial management system: An accounting system to allocate costs properly, a performance budget based on a definite work program, an audit system to insure accuracy, and a revolving fund to simplify and control ownership of physical assets. While we adopted all these elements more than 20 years ago, we do not permit them to become static or sterile or stereotyped. On the contrary, each has been refined and improved and made more useful tools of management. In 1952, for example, with the aid of the General Accounting Office, the Bureau of the Budget, and the Treasury Department, we instituted a major change to integrate the financial system for Civil Works more solidly. We put into effect the following improvements, in the Divisions shown on Chart I, in the 40 District Offices reporting to those Divisions, and in my own Office of the Chief of Engineers: 1. New appropriations structure; 2. Uniform classification of features and activities; 3. Revolving fund replaced plant account; 4. Improved programming system; 5. Improved cost and progress reports; 6. Integrated cost and fiscal accounts.

Of these improvements in our financial management system the Committee on Appropriations of the United States Senate said:

"The Corps of Engineers has revised the format of their budget presentation since last year. The Committee commends the Corps and the General Accounting Office for the development of a revised programming, budgeting, and reporting system and the necessary accounting revisions. These revisions will not only give the Congress a clearer picture of the need for the funds requested, but will provide the Corps of Engineers, and the Congress, an opportunity to compare the programed work with actual accomplishments during the course of the year."

The House of Representatives Appropriations Committee also said:

"The Corps of Engineers is to be commended for the present format of the budget and the presentation of the justifications of the various appropriation requests. Both serve to give to the Congress and interested citizens a clear and concise picture of the various civil works projects, including detailed activities of the Corps of Engineers and expenditure data on the several projects. Such a presentation is made possible by a different method of accounting recently installed by the Corps of Engineers with the cooperation of the General Accounting Office. The committee believes that agencies in the military construction field could well study the operation of this system and commends it to other agencies in the construction field."

All of these financial controls which were developed to provide successful management of our Civil Works program were in such a high degree of refinement and perfection that the Corps was able to assume, without major financial management difficulty, the huge Military Construction and Real Estate program assigned by the Congress in 1941. The principles were sound, the procedures proven, and the methods flexible, so that no major changes in system were required to control the thousands of World War II projects. Chart II shows the extreme variation in workload that the Corps of Engineers is called upon to perform and gives some indication of the degree of flexibility that must be built in to our whole management plan to make it effective under all conditions.

These financial controls, vital as they are, do not provide all the management tools we need. We control and conserve our manpower just as intensively as our money. During World War II, manpower was our most critical commodity and the resource in which supply never met demand. In 1942, therefore, we set up a system for controlling our manpower, allocating

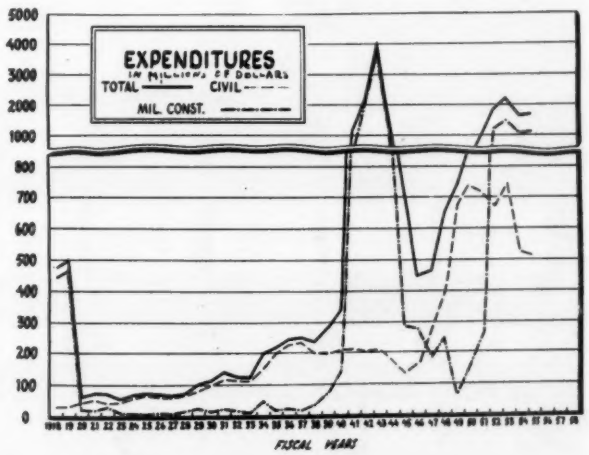


Chart II

it to the most critical needs, and then making sure that it was effectively utilized. We kept teams of manpower utilization specialists moving constantly from office to office, job to job, to assure that we had the most effective distribution of available workers. These groups were not of the "hatchet" variety seeing only excesses; they also saw shortages and anticipated requirements, and provided the advance intelligence needed to prevent any person from being occupied only part-time on one job while he was urgently needed on another. Our experts also carried from job to job information as to ways and means of improving methods or changing procedures, or modifying the organization, to get the work done at less manpower cost.

Although manpower is not so critical today, we watch it just as closely as we did then because it is one of the major elements of our construction costs. While the principle has remained the same over the past 14 years, we have continued to develop improvements in our methods of insuring proper manpower utilization. In this effort, as in our total management effort, responsibility and authority have been decentralized. Teams from my office visit on a periodic basis every office shown on Chart I, to verify that the controls these commanders exercise over the allocation and use of this manpower are effective. Those commanders, in turn, send similar groups into every office reporting to them, with the result that every activity, every function, every element, undergoes a critical, on-the-spot examination at least every 18 months.

But this is not all. Between surveys we have a system of analyzing the performance of those offices in terms of the number of man-months required to do specific items of work on a monthly basis. These analyses permit comparisons between past and present performances, between the performances of like offices, and to statistical "standards" or "averages" that have been developed over the years. This technique of appraising performance has been developed and improved over several years; and while it has not yet reached the degree of perfection and reliability of which it is capable, still it puts a good red flag on potential trouble spots and lets us do something before a bad situation actually develops. With regard to work standards, we tend toward developing and perfecting installation standards rather than national standards, because these seem to reflect more adequately the variations inherent in the type of work we do, and provide all levels of management with a better degree of control.

Many of these management techniques and controls we use are made possible – and others are made more effective – because of our organizational policies. As I pointed out earlier, we have a decentralized organization, and our commanders have been given authority commensurate with their responsibilities.

We also believe that when commanders have similar missions, they should also have similar organization structures. Since all of our continental Division Engineers and District Engineers have similar missions, we have prescribed since 1946 the basic pattern their organizations should follow. The organization pattern for a Division office is shown in Chart III, and that for a District office in Chart IV. Note that these charts go only to main block level, those that report to the Division Engineer or District Engineer. Below that main block level the Division or District Engineer

Chart III

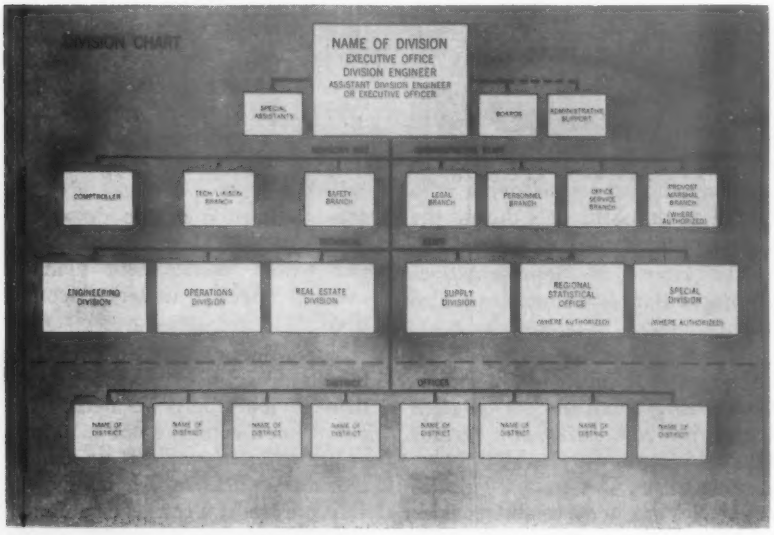
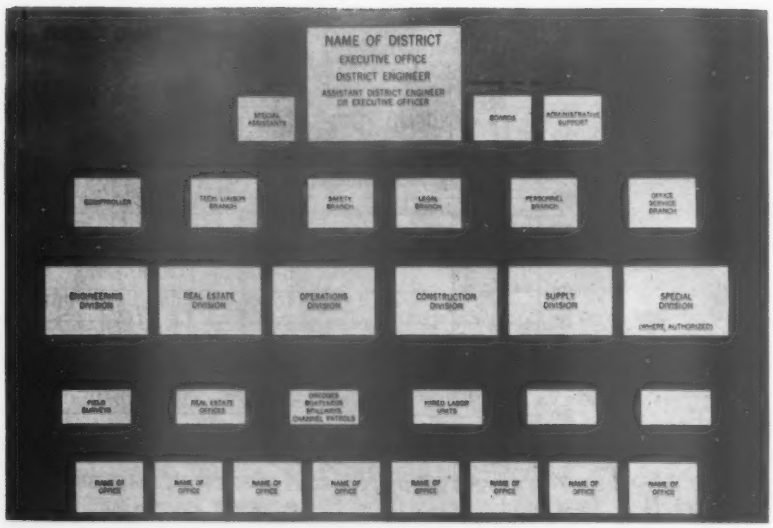


Chart IV

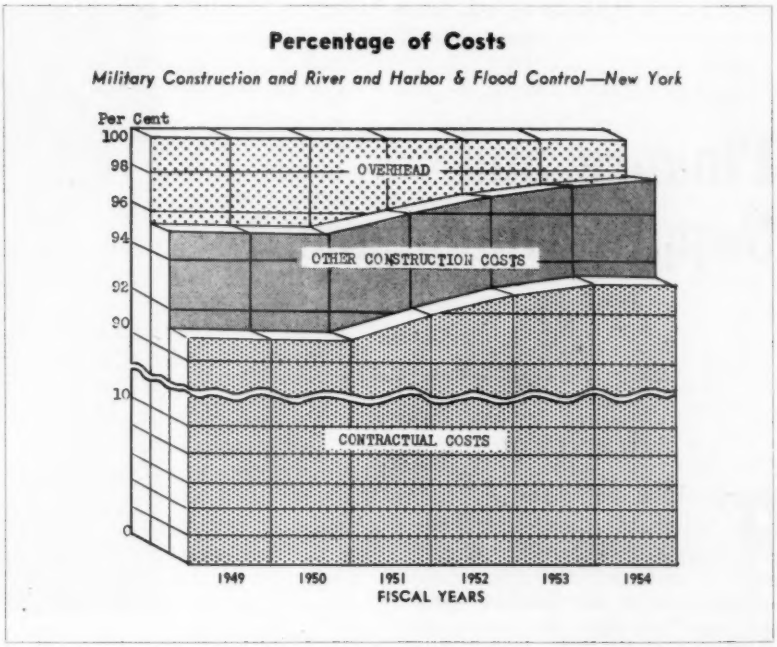


has authority to subdivide his organization to fit conditions in his particular office. Thus, basic control and guidance are provided, but sufficient flexibility is allowed to take care of inevitable variations. Control is also exercised over the structure of all the other organizations shown on Chart I and to the same degree: control by principle but not detail.

Reports are basic management tools, of course, and they increase in importance in direct proportion to the degree of organizational decentralization. In our case, with our highly decentralized organization, they are vital. Therefore we have a system of reports covering all facets of our work at all echelons, feeding periodic information into management at every level. This system comprises those reports prescribed by the Chief of Engineers, plus those reports required by higher authority that are useful at my headquarters or Engineer field agencies, but not the many other reports we are required to make to satisfy higher management levels.

Our reports system provides data for the review and analysis of our operations to point up how well we are accomplishing our planned program. One product of this review and analysis is a monthly performance report which brings together, in one booklet, the overall status of each major program. This report shows how each program stands in relation to its objective, the reason for any deficiencies, anticipated difficulties, and a forecast of performance for the remainder of the fiscal year. I make the report the subject of at least one staff conference during which the problems pointed up are discussed, and solutions are sought. Copies are furnished to all major staff elements of OCE and to field commanders in order that all concerned have the opportunity to keep abreast of the overall Corps of Engineers picture.

Another product of our reports system is a quarterly compilation of statistical data comparing the operations under the various Division Engineers. The data contained in this booklet relate such factors as overhead and workload, personnel and workload, obligations forecast and accomplished, rates of expenditures, sick leave rates, quit rates, etc.



This booklet is given the same distribution as the performance report, and, after all recipients have had an opportunity to analyze the data, they are discussed at a conference with Division Engineers. The actions we take as a result of this technique of appraising comparative performance have had considerable influence in improving the effectiveness and efficiency of our operations.

To be of value, all these basic tools of management we use must be kept sharp, bright, and modern. Our management improvement program, which provides for participation by every person in our 60,000-man organization, is designed to help accomplish just that. One measure of the success and effectiveness of that program is the fact it produced 1318 completed management improvement projects during FY 1955, resulting in benefits valued at approximately 29.7 million dollars.

The success of our comprehensive and intensive management effort is indicated in Chart V, showing the increased proportion of our appropriated dollars paid to contractors, and our decreased overhead. By assiduously applying the techniques I have described, we have achieved a better management job for less money. Obviously, this trend cannot continue indefinitely, because as long as there is work there is an irreducible minimum cost of overhead. Until that absolute minimum is achieved, however, we in the Corps of Engineers will not be satisfied. We shall continue the most positive, vigorous and aggressive action toward our three goals of accomplishment, economy, improvement.

Analogue Computer Installed At Hamilton Standard

An analogue computer which supplies in a matter of minutes the answers to highly complex design questions that might take weeks with a slide rule and pencil, is the latest electronic engineering tool installed at Hamilton Standard, division of United Aircraft Corporation, Windsor Locks, Conn.

Using the computer, Hamilton Standard engineers can simulate extreme conditions of altitude, speed, temperature, pressure andd other factors difficult or impossible to set up otherwise. Almost limitless design problems can be solved and many hours and even days of expensive flight testing saved.

The computer, a product of George A. Philbrick Researchers, Boston, was chosen as best suited to Hamilton Standard's needs and because its operation does not require electronics experts.

Finance and Supply Management

By C. B. Arrington

Captain, U. S. Coast Guard
Comptroller

Comptroller Activities

THE GENERAL direction of financial, supply, and statistical reporting matters is under an office of the comptroller at our central headquarters. This office also makes the payment of military personnel allotments and retired pay, the consolidation of service-wide reporting, and performs the headquarters' unit procurement and accounting. In the field, the comptroller organization extends to the staff of the twelve district offices and four larger shore activities.

For last fiscal year, cost of personnel for comptroller activities ashore totalled about $1.4 million for central direction and services at Headquarters in Washington, D. C. and $4.6 million for field units. Service-wide, these costs were divided functionally as follows:

Staff direction	$ 449,000
Internal audit	58,000
Budget	127,000
Accounting	730,000
Payroll and voucher preparation	1,108,000
Statistical service	233,000
Supply offices	1,711,000
Stores operation	1,356,000
Total	$6,012,000

Financially, the Coast Guard today is operating within a complete accounting system in which budget preparation and controls are integrated with the accrual of actual costs. Supply-wise, we have the basic framework for a sound program, including direct support by the Navy for a large portion of our requirements. There are, of course, many areas in both fields where further improvements are necessary since our present systems are only a few years old.

Development of Present Systems

Against the background of widespread demands for more governmental efficiency after World War II, in 1947 Congress initiated an independent survey of the administrative, management and fiscal policies and affairs of the Coast Guard (P.L. 299, 80th Congress). The objective recommendations stemming from that survey, with active Congressional support, cleared the path for major improvements. Among the first steps made possible was the employment of a nucleus staff of qualified accountants and supply specialists. Equally important was management's recognition of the role that accounting, inventory control, and other such devices must serve in today's organization. Also, the cooperative efforts of the accounting systems staffs in the General Accounting Office, the Bureau of the Budget, and the Treasury Department did much to simplify or eliminate many outworn procedures which did not fit the modern pace of government business.

In our accounting, after several years of trial and adaptation, we have learned that the individual Coast Guard activity, such as a ship, or a station, is the most practical basic unit for budgeting and cost accumulation. After recording, the costs of like units are gathered together into classes for comparison and analysis. In turn, the totals for classes are consolidated into major activities for external presentation and review. Using this pattern, we have a picture in the following format.

The format is varied, of course, to suit a particular management problem or requirement. Also, the number of units operated may be shown as well as the financial data.

Significant Features of Accounting System

An element of our system, unique among the military services, is the recording of the total of all direct costs for each unit, including the cost of the military personnel assigned. Thereby, each commanding officer is afforded a clear view of the financial aspect of his operations. Another feature of interest is the tieing in of costs with obligations, which is made possible by the integration of cost and appropriation accounts. It will be noted, of course, that we have two separate activity classifications shown as "Supporting Programs" and "Other Military Personnel Expense" which include expenses which cannot be costed direct to operating units. These items include, for example, replacement of certain high-cost equipment, permanent changes of duty station, and severance benefits, which are budgeted separately on the same basis as costs.

Financing Other Programs

Apart from "Operating Expenses", a separate appropriation and cost report series is used for construction projects, and for the acquisition of aircraft and larger vessels. These projects are grouped for review into the same activity classification as used for operations. Other separate appropriations are provided for the reserve training program and for retired pay, respectively.

For financing the industrial work at the Coast Guard YARD, our principal activity of this nature, a special fund has been authorized (14 USC 648). The accounting and reporting under this fund provides management with business-type information suited to YARD operations and problems. All costs are financed and reported under the fund, including military personnel and depreciation except for real property.

At lesser industrial activities we have adopted a similar but simpler accounting technique within the framework of the annual appropriation. For several of the units, a system has been developed to require the financing of all costs, including military personnel, in a single budgetary account, which, in turn, is supported by funds provided for each project order at the time of authorization. It is expected to extend this feature to all these small industrial units. Eventually, when we have resolved the management problems, it is hoped that we can shift over to the use of the special revolving fund in all activities of this kind to overcome the inherent difficulties met each year-end under an annual appropriation.

In inventory financing, we are using a special revolving fund (14 USC 650) for rapid turnover, staple items, and for provisions and clothing. Here, too, the fund is self-supporting and the accounting and reporting is on a business-type basis. On the other hand, for technical supplies and equipment, inventories are still financed under the annual appropriation. The desirability of consolidating all inventory financing under the revolving fund has been considered but, as yet, without final resolution of the budgetary problems involved in this step.

Decentralization of Financial Responsibilities

In its actual operation, accounting is decentralized to the twelve district offices with central consolidation of reports. This pattern ties in with that intended for control of expenditures and follows the principle that financial responsibility must go hand-in-hand with operational responsibility. In some expense areas, we must deviate somewhat from the pattern because of the military nature of the organization. Primarily, the control of military personnel is determined by an overall rate structure established centrally so as to maintain proper internal proportions. Similarly, rotation and promotion policies, and recruiting quotas are determined centrally. Within the total structure, specific billet allocations, or complements, are established by headquarters for each unit. However, field commands must charge the actual military personnel costs incurred against an open-end allotment, thus exercising financial responsibility in this matter to a compromise degree.

COMPARISON OF OPERATING PROGRAM

Activity Classification	Past Year Costs	Current Year Plan	Budget Year Plan
1. Vessel* Operations	$ 64,349,453	$ 58,505,460	$ 58,257,277
2. Aviation Operations	13,363,329	12,536,341	13,599,727
3. Shore Stations and Aids Operations	37,545,822	33,499,238	33,690,811
4. Repair and Supply Facilities	13,889,867	13,409,936	13,409,936
5. Training and Recruiting Facilities	7,027,833	7,042,839	7,214,339
6. General Administration and Operational Control	17,323,125	19,451,275	19,306,193
7. Other Military Personnel Expense	18,479,325	18,370,294	16,166,985
8. Supporting Programs	10,503,436	9,278,455	8,664,732
Total Cost of Activities	182,482,190	172,093,838	179,310,000
9. Reimbursable Costs	1,248,475	1,000,000	1,000,000
10. Net Change in balance sheet accounts and undelivered orders	690,387	(−) 609,538	−610,000
Total obligations	$184,421,052	$172,484,300	$170,700,000

* Includes ocean station vessels

Problems of Supply Management

Going back several years to the initial stage of our present program, at that time three fundamental problems appeared most important. Without inference of priority, the first was to get all our inventory identified, recorded and taken up in the accounts so we would know what we had on hand. The second was to decide upon the most appropriate stocking points and supply facilities. The third was to establish a sound list of items to be stocked. Along with these problems, we recognized the incidental need for the overhaul or development of detailed procedures for supply management and operations. Since then, some progress has been made along all of these lines and we have completed the fundamental task of inventorying all of the material on hand. Sample of the principal locations of our supply activities and the inventories at those points are shown in the attached table.

Now, in the second stage of our program, we are shaking down the system. For one example, we are disposing of much material found to be junk, obsolete, or no longer required. For another, we have moved and combined some of our field facilities so as to use Navy space where suitable and available. In a third area, we are shifting to direct support from Navy sources for items available in Navy stocks. This latter move permits us to eliminate stocks of Navy materials in our supply depots.

From the management viewpoint at this time, the field in which supply progress has been most difficult is in developing adequate and necessary information for listing those items we repetitively use but which are not available from other government agenices. This information is required as a necessary foundation for development of well-planned supply policies.

These items concerned comprise, for example, parts and components for aids to navigation, for engines and electronic equipment and various distinctive items. Many items are ordered from a manufacturer's stock according to his designation and arrangements. In many instances, the supply is through local distributors or dealers. Other items

are procured to special order, in some cases for stock, and in other cases for immediate use. In the past, the supply and replenishment of these items has been uncoordinated and even fortuitous. In the absence of sound-item by-item determinations and good usage data, a poor orientation of inventory to actual requirements is inevitable. In respect to these items which may be called peculiar to the Coast Guard's needs, the Coast Guard has sole responsibility for (a) development of specifications, (b) indentification and cataloguing, (c) determining when and where to stock, and (e) standardizing where desirable. These items are perhaps enough to illustrate the complexity of supply planning. Now that we are nearing the resolution of some of our pressing problems, we expect to give added emphasis to these more basic areas of materiel control.

Needless to say, the work of specification development, identification, cataloguing and standardization is tedious and time consuming. Fortunately, much basic ground work has been done and steady progress is being made in the overall program. Many categories of materials have been, or are in the process of being, converted to the new Federal indentification system. As each conversion is made, we are following suit. Our work is this field is carried on with the guidance of the Department of Defense organizations established to carry out P. L. 436 (82nd Congress). This law envisions a uniform federal catalog system and to this end, we have working relationships with the various components of the Office of Naval Materiel.

Cost Conscientiousness

In our comptroller activities, we have established workload measures covering each function and we maintain a frequent review and comparison of costs. Financial reports and comparisons are also prepared for the information and action of responsible managers in the field and at the several review levels. We feel that as a result of such continued emphasis there has been a widening recognition of the importance that comparative costs should bear in most management decisions.

North American Has Most Successful Year

Creation of three new operating divisions marking maturity of a broad diversification program started ten years ago, and record net sales of $816,676,329 by North American Aviation, Inc., highlighted the 1955 fiscal year—the most successful in the company's history—J. H. Kindelberger, Chairman of the Board, reported recently in the 28th Annual Report to stockholders.

The report showed that after all costs and provisions for Federal taxes on income, the company's net income for the fiscal year ended last Sept. 30 was $32,349,176, equal to $9.42 per share and 3.96 per cent of sales. This compared to the previous year's net income of $22,179,736, equal to $6.46 per share.

While aircraft production continues to account for a major portion of the company's business, Mr. Kindelberger announced that "our continued growth in other fields of activity in which the company has become established matured to the point where separate operating divisions were created to provide a strong basis for further expansion in those fields."

New divisions created by the company are:

Atomics International – Nuclear engineering and manufacturing in the field of electrical power, industrial, medical and research reactors.

Autonetics—Development and production in the field of automatic navigation and electromechanical control systems for airplanes and missiles, and electronics.

Rocketdyne – Development and manufacture of high-thrust rocket engines for guided missiles, and armament rockets.

"In each of these areas of activity," Mr. Kindelberger said, "the company has experienced encouraging success and growth by virtue of outstanding technical contributions."

Hamilton Standard Plans Major Expansion

Plans for a major expansion of the Hamilton Standard division of United Aircraft Corporation at Windsor Locks were announced recently by Erle Martin, general manager. The new addition, he said, will be financed by the company in keeping with United's policy of building and owning its own facilities.

The expansion will include an addition of 210,000 square feet of manufacturing space in the form of a new one-story structure to be built on company property just south of the present plant. At the same time, construction of a third floor on the present two-story office building will give the company an additional 40,000 square feet of office space .

Both the manufacturing building and the additional office area will be completed within a year, Mr. Martin said. The manufacturing section will form the central portion of a new structure which eventually will add about 480,000 square feet to the company's production floor space. No date has been set for completion of the remaining sections of this building.

The need for more space comes chiefly from Hamilton Standard's increasing activity in production of specialized products for turbine-engined aircraft, Mr. Martin said.

Pennsy RR Shuffles Organization

A "revolutionary" management shuffle of the nation's largest rail carrier was announced recently by the Pennsylvania Railroad.

The "top brass to grass roots" reorganization, which took effect Nov. 1, was approved at a meeting of the PRR's board of directors and then released by the Pennsylvania's president, James M. Symes.

Only one of the PRR's present 19 divisions and three regions remained unaffected by the new setup —the Atlantic Division which consists of the PRR's joint New Jersey seashore line run in conjunction with the Reading Co.

The PRR's other present management units were replaced by nine regions—with headquarters at Philadelphia, Pittsburgh, New York, Chicago, Indianapolis, Buffalo, Baltimore, Cleveland and Cincinnati.

Symes said the plan was the result of a year's study by a firm of consultants.

What Management Means to Me—

This Month:

By Gilbert C. Jacobus
Director Of Instruction,
The Army Command Management School

Note: This article does not necessarily represent the views of the Department of the Army nor the Department of Defense.

Management is opportunity. It's opportunity to be of service to others,—which Lawrence A. Appley, President of the American Management Association, points out is a basic responsibility of any mentally and physically able person.

But can this apply to business, or the Armed Forces? Well, let's see. Doesn't a business have to create, or contribute to the creation or distribution of a product or service that the community needs and wants? Doesn't a business have to create and distribute that product or service at a quality needed by the community and at a price which will make it available to increasing numbers of people? Do not the Armed Forces have to provide for the defense of the Nation? And don't they have to do this at a cost to our economy which the Nation can bear without undue hardship, if possible?

Management in the Armed Forces

The Armed Forces have a splendid record of service to the Nation in times of emergency and war. The managers of the Armed Forces should so conduct themselves in peace in relation to their uniformed personnel, civilian employees, suppliers, other Branches and Departments of the Government, and the public-at-large that the Nation will continue to look to them as bearers of the highest standards in social responsibility.

Those who constitute management in the Armed Forces must see to it that we have defenses which will secure the Nation against any grievous impact of the constantly advancing technology of the weapons of war. They must prepare themselves to help lead the Nation in total war, should this ever come to us. They must provide leadership which insists upon optimum use under all circumstances of resources including people and human skills, materiel of all types, facilities, and money.

The Individual Manager

In any particular organization entity, an individual manager has the opportunity to serve his superiors and his subordinates. He serves his superiors by making certain that the unit, or units, under his jurisdiction do in fact provide the kind of support the next higher echelon requires to meet its responsibilities. This calls for a clear understanding of assigned missions; acceptance of authority granted and responsibility imposed; willingness to act on his own initiative within prescribed boundaries; capacity for creative thinking and decision-making; and desire to accomplish the assigned missions with the resources allocated, if at all possible.

The manager serves his subordinates by creating and maintaining within his organizational entity a management climate conducive to drawing out his subordinates' best efforts. This requires that the manager himself plan ahead, give guidance as necessary, appraise performance and correct when such action is indicated. He needs to provide the incentive which springs from recognition for work well done.

The Challenge of Management

Management is a challenge to grow professionally and intellectually. It was Donald K. David, formerly Dean of the Harvard School of Business Administration who in 1953 stated that "professional standards and professional skill in practicing administration are equally necessary in today's world . . ."[1] The manager of today and tomorrow must be prepared to put to practical use the accumulated wisdom of the social and physical sciences. This calls for ability to integrate the activities of numerous specialists. It demands sufficient knowledge of the capabilities, and the potentials and limitations of personnel, materiel and techniques under the manager's jurisdiction to permit sound decision-making.

The manager must constantly seek to improve his ability to plan ahead. This involves setting objectives, forecasting future conditions, formulating courses of action—providing the guidance important to the accomplishment of the objectives.

The manager must constantly seek to improve his ability to organize and control. This involves determining necessary functions and their relationships; assigning responsibilities, authority and accountability; arranging means to measure the effectiveness of performance; and allocating resources, both human and physical, in conformity with missions assigned.

The manager must constantly seek to improve his ability and motivate his subordinates. This is a matter of leadership which involves the strengthening of personal qualifications that draw from subordinates their best efforts. In this area attitudes are of first importance

(*Continued on page* 31)

[1] How to Increase Executive Effectiveness, Edward C. Bursk—ed., Harvard University Press, 1953

Military Management Training

by BENEDICT RAY

WHEN the first 34 graduates of the newly founded Army Supply Management Course crossed the platform and received their diplomas, a new era of management of military supply was inaugurated. This graduation in December 1954 represents an historic step toward economy in peacetime and the efficiency of preparation in the event of war, in all areas of supply for the Army and possibly for other armed services as well. In the past many efforts have been made to improve the operation of the supply system of the armed forces, some successful and some with limited or poor results. The present effort at educating top managers in the supply system will have an ever-widening effect upon the operation of military supply as the graduates spread throughout the entire system.

The students of the experimental first class in advanced supply management were faced with instructional methods unheard of in the old training manuals of the Army. They were accustomed to lectures complete with charts, graphs, motion pictures, film strips and the other devices customarily used by military instructors. There was considerable shock when the students gathered in a large semicircle, faced the instructor and commenced their discussion of Case No. 1.

The instructor acted as a discussion leader, took no active part in the discussion himself, and gave no answers or "school solutions." He did, however, draw out the reticent, quiet the brash, pose provocative questions, and most important, keep the discussion within the confines of the case.

The case method itself is not new. It has been used for many years at the Harvard Business School and other institutions. Its application to military education, however, is unique in this instance. The effect on the students was instantaneous. Virtually all of the recent graduates commented favorably on this method of presentation. One student describes the difference between the traditional type of instruction and the new presentation with, "The class is enthusiastic over the case method as a technique of instruction. We could not have covered so much ground by any other method. Lectures and problems would have failed." Another, comparing the relative proportion of cases and guest speakers, said, "Present proportions of cases and lectures are about right. I abhor the normal 'lecture and discussion' method of teaching." Continuation of the formal classroom discussion after hours occupied the attention of another student, "Case method instruction is ideally suited to this level of students. The informal discussions between students out of class are particularly beneficial in filling gaps in their backgrounds. Care, however, must be exercised in insuring that accepted principles are stressed." Further resistance to lectures resulted in this caution, "The cases were excellent and should be used to replace lectures as much as possible." Another student wrote, "In my opinion, the course is a distinct milestone in the progress of education in the Army toward businesslike handling of Army Supply." A keen observation, striking at the heart of the matter, is the statement, "Excellent method of teaching this course. Instructors can raise the level of thinking to top manager's viewpoint." The above statements were representative and illustrate the students' enthusiasm. There were no unfavorable comments in writing from any of the students relative to the method of instruction, that is the "case method," used by the Army Supply Management Course.

Another departure from customary military routine has the faculty winnowing out the remarks of the students and incorporating their criticisms into the curriculum wherever possible. The comments of students are worthwhile, not only because of their own intrinsic value, but by virtue of the qualifications of the first group of students. There were seven colonels, eighteen lieutenant colonels, and nine civilians making up the initial class. Their contribution to the case discussions, their comments on the course in general, and their recommendations for future trends are all of value to the administration of the Army Supply Management Course. It is no small wonder that their ideas are gratefully accepted by the faculty and will be utilized to improve instruction and consequently the supply system itself.

There is no question that efficient supply is the keystone of success in modern battle. The huge amounts of materiel needed, such

as vehicles, spare parts for the vehicles, food, clothing, and ammunition, fill ship after ship when the military is engaging in a struggle on foreign shores. The pipeline of stored and moving supplies is long and itself contains a huge volume of materiel. Another war in this age of mechanization will require still more supplies than World War II and the Korean Campaign. Even the requirements for the peacetime Army in preparation for such a war are so vast that they stagger the imagination. They can readily become a drain on national resources, unless action is taken to insure economy during peacetime as well as functional efficiency if war breaks out. Supply managers in the Army find themselves facing almost impossible tasks. The limiting factor, of course, is preparation for war, but other considerations must be taken into account. Within these limiting factors there are unexplored ways of planning requirements more effectively, of working more closely with industry in the matter of production, of greater efficiency in the distribution of current supplies, and the maintenance of safety levels against the possibility of full mobilization. The aim and purpose of the Army Supply Management Course is to alert the responsible officers and others in the supply system to the integrated nature of these problems and make them aware of various methods and means of providing a more economical peacetime system which can readily make the transition from peace to mobilization status.

Early in 1953 the Under-Secretary and Deputy Under-Secretary of the Army, the Assistant Secretary of the Army (Materiel), and the Assistant Chief of Staff, G4, met and agreed that there was a need for exploration of the supply problem and the preparation of doctrine and policy with respect to the operation of the supply system, and improved management on the part of those responsible for the functioning of the entire system. There was little appropriate literature available analyzing this problem, and there was a need for someone with experience to develop the requisite concepts of supply management. It was decided then to employ a civilian contractor, Harbridge House, Inc., of Cambridge, Mass., a business consulting firm. This firm was engaged to make a survey of the existing problems, to write a manual prescribing policies, philosophy, procedure, etc., and to establish a course which would train supply managers of the Army in these policies and procedures.

Later the Davies Committee pointed out that business methods should be applied to Army supply and the Secretary of the Army's "Plan for Army Organization" made recommendations for an improved logistical and management organization. All of these reports and investigations indicated the need for the installation in the military of better management practices (improved logistical training and logistical career planning). These were straws in a wind which eventually built up to gale force and culminated in a major reorganization of the Army's supply system. The result of this turmoil was the creation of a new post, the Deputy Chief of Staff for Logistics. In addition, the Army Supply Management Course was established and commenced operations in October 1954. Many eyes are on this new organization. The results of these improvements are being followed closely by appropriate committees of the Congress, by the Secretaries of Defense and of the Army, and others.

The Army Supply Management Course, then was established by the Deputy Chief of Staff for Logistics, in order to inculcate in his active staff members an improved knowledge of logistical and supply management. It is a course for senior officers and civilians working for the military. This institution, the Army Supply Management Course, is an immediate attempt to apply business procedures to the workaday problems of Army supply. Harbridge House, Inc., was hired to conduct the first class. As this firm draws many of its research personnel from Harvard University, they naturally turned to the case method, which has been so successful in the Harvard Business School. Harbridge House performed the necessary research, wrote the cases for the first class, and conducted the instruction. Members of the first class included, in addition to those described above, officers who were to take over at the completion of the first class and carry on the instruction for subsequent classes.

For the first three months of the first class the Director and the twelve instructors of the Army Supply Management Course performed the dual functions of students and future faculty. They worked at studying cases, participating in discussions, and attending classes and lectures during the greater portion of the day. They then took over their own duties of selecting cases, reading background material, and preparing themselves for the conduct of future classes. These were hectic days of hurry and bustle.

In addition to the use of the case method, a departure from ordinary Army instruction, the Army Supply Management Course has gone even further afield by the selection of a civilian educational advisor. This individual is expected to continue the program initiated by Harbridge House and attempt to maintain the direction first established by the initial class and found so successful. (He also prepares and revises training publications relative to instruc-

(*Continued on page* 46)

New Insignia of Grade Authorized for Army Warrant Officers

Wear of newly designed grade insignia for Army warrant officers has been authorized, effective immediately, the Department of the Army announced today.

The old insignia is authorized for wear, however, until December 1, 1956.

The new insignia consists of a silver or gold bar, with two or three lateral bands of brown enamel, depending upon the grade.

By grades, the insignia consists of:

Chief Warrant Officer, Grade 4: silver bar with three brown enamel bands.

Chief Warrant Officer, Grade 3: silver bar with two brown enamel bands.

Chief Warrant Officer, Grade 2: gold bar with three brown enamel bands.

Warrant Officer, Grade 1: gold bar with two brown enamel bands.

NEWS BRIEFS from the SERVICES

Homestead Air Force Base, Florida. The 379th Bomb Wing has been reactivated by the Strategic Air Command as the first of two B-47 medium bombardment wings to be assigned to this base. The 19th Bomb Wing will move to Homestead from Pinecastle about mid-year. With the increase, it is planned to establish the 823d Air Division headquarters here with a full complement of 90 stratojets.

U.S.S. Philippine Sea, San Diego, California. The 72,000th landing was made recently on this huge carrier which total is second only to the famous carrier Boxer. The landing, was made by Lt. Leo Partlett, a member of Fighter Squadron 143 which is a part of Air Task Group Two. The PHILIPPINE SEA is on her fifth cruise in the Far East since the start of the Korean conflict.

The Engineer Center, Fort Belvoir, Virginia. 200 top American business and industry executives, members of the National Security Industrial Association, gathered recently at Fort Belvoir to observe Army Engineer activities and operations. The full-day visit included a tour of the Engineer Research and Development Laboratories and demonstrations of assault bridging, combat Engineering and all activities of the Engineer School.

El Toro Marine Corps Air Station, California. Brigadier General Alexander W. Kreiser Jr., Commanding General, officially opened a newly constructed 29-mile fuel line from Norwalk, California to the Air Station in recent ceremonies at the base. Fuel is now flowing regularly from the Air Force's fuel-tank farm, constructed by the Army at Norwalk, through an eight-inch Navy-owned pipe line. Capable of carrying 22,680,000 gallons of JP-4 jet fuel per month, the million dollar pipe line will more than pay for itself within a few years.

Erding Air Depot, Germany. Operation "Snip-Nip" is well under way and will continue for another 30 days in a drive to cut paper work and effect overall management with increased efficiency. A complete survey is being run to determine and eliminate unnecessary reports.

1st Cavalry Division, Japan. A reduction in strength by one regiment and a Field Artillery battalion is planned in accordance with the recent policy of reducing deployments in the Far East. The 7th Cavalry Regiment and the 77th Field Artillery Battalion, elements of the 1st Cavalry Division, will be reduced to token strength.

Andersen Air Force Base, Guam, M.I. The regular monthly Commander's Call for all assigned and attached organizations is being used to emphasize the new "Military Management Improvement Program" at Andersen Air Force Base, according to a recent announcement from Brigadier General Nils O. Ohman, Commander of the Strategic Air Command's 3rd Air Division. The "Suggestion Story" will be included in the conference, and will be given by a speaker from the Base Manpower and Organization Office.

Headquarters Sixth Army, San Francisco. Lieutenant General Robert N. Young, Commanding General and recently Chairman of the 1955 United Bay Area Crusade, successfully welded together more than a dozen Army, Navy, Air Force, Coast Guard and Marine installations into the Crusade's Military Department. Designed to assist some 288 agencies and causes, the United Bay Area Crusade aimed for a target of $10-million. One of the largest military checks received came from the military and civilian employees of the Naval Air Station, Alameda, and amounted to $94,600. The Oakland Naval Supply Center was tops in her capita giving with an average gift of $12.46 per person. Needless to say, General Young and his Committee have won the respect and admiration of the entire San Francisco Bay Area.

United States Coast Guard. A record in high-reenlistments which has averaged better than 75 percent for the past few months, has forced the recruiting quotas to a new low for the service. This is a mighty fine record in view of the shortages which exist in the remaining four services.

Ladd Air Force Base, Fairbanks, Alaska. A Management Improvement Contest for military personnel assigned to the 11th Air Division (Defense) was recently concluded. Under the direction of Major Charles R. Russell, Director of Manpower and Organization for the division, the 30-day contest was a repetition of the successful one held last summer. Originators of the best management improvement ideas submitted from each squadron will receive engraved cigarette lighters and three-day passes. Winners in division competition, will receive in addition a $25 U.S. saving bond, a certificate of merit for management and an additional three-day pass to be used in conjunction with a flight to any location in the territory served by aircraft of the 5001st Operations Squadron.

Signal Corps Engineering Laboratories, Fort Monmouth, New Jersey. The new "Electronic Sentry" AN/MPQ-10, a joint development with the Sperry Gyroscope Company, has proven so successful that a new $8-million contract with the Sperry Rand Corporation has been awarded. The new counter-mortar radar systems are compact and mobile for quick movement into battle.

Coddington Cove, USN, Newport, R.I. Dedication ceremonies were held recently opening the Navy's new $4,000,000 destroyer pier at Coddington Cove. Slated for official completion in March, 1956, it was decided to bring vessels alongside this month before the winter season hit its peak. The Navy has had shore facilities in this

area since 1880, and the pier represents the first permanent structure.

Forbes Air Force Base, Kansas. Better safety practices have saved more than $92,000 so far this year at this installation. Compared with the first ten months in 1954 they are way ahead and still going. In this period in 1954 there were 156 lost time military injuries costing $335,226 compared to the 61 injuries costing $242,172 in 1955.

U.S.S. Forrest Sherman (DD-931) Boston Naval Shipyard, Massachusetts. Chief of Naval Operations, Admiral Arleigh A. Burke, USN, made the major address at the commissioning ceremonies recently at the Shipyard. Named in honor of the late Admiral Forrest P. Sherman, the ship is the first of a new destroyer class, and the first of its type to be constructed with an all aluminum superstructure. Designed to replace the Gearing Class, she is slightly larger with more powerful engines and more armament.

Randolph Air Force Base, Texas. Brigadier General John W. Persons, Base Commander, recently snipped the ribbon opening the new "Country Store" for base supply clerks. Complete with modern lighting, display counters and super-market baskets, the store has five departments: (1) office, janitorial and photographic supplies; (2) commercial hardware; (3) automotive supplies and engineering equipment; (4) electrical supplies; (5) refrigeration and building materials.

Army Aviation Center, Fort Rucker, Alabama. Commercial recordings of the official Army Aviation Song, "Above The Best", are now on sale at the book department. This marks the first time the song has been offered for sale on phonograph records since its adoption as the official song about a year ago. "Above The Best" is available on 45 rpm platters, and was composed by Mrs. Jules E. Gonseth Jr., and Mrs. Charles W. Natheny. Priced at $1.10, orders will receive prompt attention from the book department.

3380th Technical Training Group, Kessler Air Force Base, Mississippi. A new and complex electronic communication system will be completed this month which will enable two-way conversation between the commander, his staff, and between staff and subordinate activities. Installing the system which serves 14 buildings is a detachment from the 6th Communication & Construction Squadron at Brookley Air Force Base, Alabama. Upon completion, subsequent maintenance will be handled by the Base.

Camp Pendleton, California (AFPS). Fifteen thousand marines from the 1st Div. stationed here took part in a 12-day large-scale amphibious exercise in coastal waters between San Diego and Camp Pendleton recently.

The marines were joined by elements of the Pacific Fleet, Canadian air and naval units and 300 aircraft from the fleet marine force and the 3rd Marine Aircraft Wing.

Vice Adm. Herbert G. Hopwood, commander of the First Fleet, directed the overall maneuver. Maj. Gen. Merrill B. Twining, Ist Div. commander, staged an amphibious assault on the Pendleton beachhead.

Participating Canadian forces included destroyers, escort craft and minesweepers as well as anti-submarine warfare planes.

Whiteman Air Force Base, Missouri. Senator Stuart Symington (D-Mo.) and Major General Francis H. Griswold, USAF, were the principal speakers at the dedication ceremonies recently of the base. A parade and review of some 2500 Whiteman personnel and flyovers by B-47s, KC-97s and F-86s together with an aerial refueling hook-up completed the day. Honor guests included Mr. and Mrs. John C. Whiteman, parents of the late 2d Lt. George A. Whiteman who was the first American casualty of World War II.

Engineer Research and Development Laboratories, Fort Belvoir, Virginia. A three-day management conference, attended by laboratory chiefs from all the Army's technical services, including Chemical, Ordnance, Quartermaster, Signal, Transportation and Medical Corp, was recently completed at Fort Belvoir. An impressive array of speakers participated in the conference from industry and the Armed Forces.

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Navy Places Largest Radio Order

The largest single order ever placed for commercial two-way radio communication equipment has been awarded the General Electric Company by the Navy.

The approximately $750,000 worth of standard two-way radios will be used at Naval Air Stations in the continental U. S.

The equipment will be used on shore patrol cars, airfield crash trucks, emergency vehicles, and materials-handling trucks for communication between the moving vehicle and a fixed location or other moving vehicles.

January Birthdays

Air Research and Development Command
23 January 1950
(Originally Research & Development Command)

University of Wisconsin. The Department of the Army has awarded a contract to the University of Wisconsin for the establishment and operation of a Mathematics Research Center to conduct research and investigations in mathematics and high speed computation theory.

Association of Military Surgeons. The 62nd Annual Convention was held last month in Washington, D.C. with representatives from 16 foreign countries and more than 2,000 in attendance. Among the discussions for the convention included the medical effects of nuclear explosions, principles of care of mass casualties, and organization for management of mass casualties.

Army War College, Carlisle Barracks, Pennsylvania. Marking the College 54th birthday recently, the present class of 187 Army colonels and lieutenant colonels, 2 Navy officers, 4 Air Force officers, 4 Marine Corps, 1 Department of State representative and 2 members of other government agencies, also began their study of Part II of the College curriculum. First study in the field of International Relations will be undertaken in Course #4, entitled "The Communist Bloc." Curriculum at the College is divided into three general fields of consideration: (1) The Army; (2) International Relations; and (3) Strategy and War Planning.

Illinois Institute of Technology, Chicago, Illinois. A Methods Improvement Conference was held at the institute on December 8-9, 1955, which proved to be one of the most popular during the year. Conference Director, Dr. Harry Ludmer, Department of Industrial Engineering, secured a wealth of talent for the occasion.

Service Force, Atlantic Fleet, Philadelphia, Pennsylvania. Under the direction of Captain H. C. Haynsworth, USN, the Fleet Supply Officers conference was recently held at the General Stores Supply Office.

Fort Benning, Georgia. Fourteen individuals were recently presented with certificates from Brigadier General Ernest A. Barlow, Infantry Center Deputy Commander, upon completion of a special supervisory course offered at Fort Benning.

Marine Corps Schools, Quantico, Virginia. Seventeen Women Marine Officers were recently graduated from the ninth Women Officers Indoctrination Course. Colonel Lewis W. Walt, Commanding Officer, Basic Schools, presented the second lieutenants with diplomas. Graduating at the top of her class was 2nd Lt. Frances B. Newman of Douglas, Wyoming.

Seattle Army Terminal, Seattle, Washington. A most successful 3-day conference on executive management was recently completed, marking the fifth such annual conference for the 30 top military and civilian executives of the Terminal. Leading executives from industry addressed the group on the latest techniques in management.

Command & General Staff College, Fort MacArthur, California. Over 100 Reserve officers from the Sixth Army area will participate in the next session scheduled to start on the sixth of this month. The special associate course includes second and third levels of the division-grade instruction and the top level of the advanced or corps or army level.

Castle Air Force Base, California. Celebrating its first birthday, the Management Training Course can look with pride at the record of the 112 graduates. Methods improvements totalling more than $70,000 savings were installed during the year for an average of more than $630 per student. This does not include the several thousand dollars more in proposals awaiting approval, nor does it place monetary values on such improvements as "less fatigue," "better morale," "more safety," and other intangibles.

Chicago Quartermaster Purchasing Center, Chicago Illinois. Activities of the Chicago QM Purchasing Center and the QM Food and Container Institute for the Armed Forces, were recently featured at an exhibit and open house conducted by the 322nd Logistical Command.

Massachusetts Institute of Technology, Cambridge, Massachusetts. Secretary of Defense Charles E. Wilson, recently announced that a research contract has been negotiated under which the Institute will assist the Weapons Systems Evaluation Group of the Department of Defense in conducting scientific analyses of present and future Weapons Systems. The contract provides no profit to the contractor, only costs incurred, and several other scientific institutions and universities will join in the project.

Columbus Air Reserve Center, Columbus, Ohio. A new Air Force Management training course with an enrollment of thirty Air Force Reserve Officers, is being conducted by Dr. Bernard A. Dietzer, Director of the Management Training Program at Capital University of Columbus. The course is the third of its kind in the First Air Force Area. Others were pilot courses in New York and Boston last year.

Quartermaster School, Fort Lee, Virginia. Procurement Course 56-3 began last month with 47 officers and key civilians representing six Army technical services and members of the Air Force and Navy. The seven-week course, the only one of its type offered by the Army has become exceedingly popular by the services.

Aviation Officer Candidate School, Naval Air Station, Pensacola, Florida. The new AOC program, which is in addition to the

Aviation Cadet program, graduated its first 19 new ensigns recently. They will now go through flight training with full pay and allowances. The AOC program requires a baccalaureate degree, while only two years of training are required for admittance to the Aviation Cadet group.

Army Com Z Headquarters, Orleans, France. The first overseas Personnel Management course for executives has begun for 30 Com Z staff executives of the rank of colonel. Officers of equivalent rank in the Navy and Air Force as well as a few ranking civilian employees are included in the three-week course patterned after the one given regularly at the Pentagon for the past two years.

Scott Air Force Base, Illinois. A squadron officers' course with an aim to help young officers solve some of the complex command problems, was recently started at this installation. First of its kind, the course consists of four phases: Command Function and Responsibility; Military Guidance and Discipline; Incentive and Morale Programs; and Squadron Administration.

Field Artillery Radar Maintenance Course, Fort Sill, Oklahoma. The 24-week course, previously taught at Fort Bliss, Texas, has recently moved to Fort Sill. With a capacity for 50 students, the 15 instructors include eight civilians furnished through contract with the Radio Corporation of America.

George Washington University, Washington, D.C. One hundred and one Air Force and key civilian employees were graduated recently from the Commanders' Class of the Air Force Management Course. Major General Wycliffe E. Steele, commander of Sampson Air Force Base, New York, addressed the graduates of the three-week course.

Walter Reed Army Institute of Research, Washington, D.C. Brigadier General Elmer W. Young, Chief of the Army Veterinary Corps, recently announced that a four-week pilot training course for training military officers in methods of detecting radioactivity in food, will begin on 9 January. The course open only to laboratory officers who have completed the veterinary radiological health course at the Institute of Nuclear Studies, Oak Ridge, Tennessee, will cover the techniques used in assaying different food products for radioactivity

Northwestern Traffic Institute, Evanston, Illinois. The 15th class to be conducted for military personnel designed to integrate the latest in traffic accident prevention and selective enforcement, recently graduated bringing the total to more than 400 military and civilians who have completed the four-weeks course. An important adjunct to improved management, this excellent training has been reflected in reduced accident costs within the military services.

Mather Air Force Base, California. Incorporating its new work measurement program into its routine schedule of maintenance and operation activities, has proven to be an advanced tool for management control. The program, presently being used by leading airlines and private industry, measuring the work, not the worker, is bringing an increase in production to this activity.

Army Medical Service School, Fort Sam Houston, Texas. Brigadier General Elbert DeCoursey, USA, Commandant, made a recent announcement of the new name Army Medical Service School. Formerly the Medical Field Service School, instruction was first started in 1920 with emphasis on all aspects of field medical service. The broadened scope of the school's curriculum makes the new designation more appropriate.

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CAA Plans Radar Control of Airways

Plans for the nation's first all-radar airway – between Norfolk, Va., and Boston, Mass.–were announced recently by Fred B. Lee, administrator of civil aeronautics. The airway will use a combination of military and civil radar equipment.

Radar control along the nation's major airways is urgently needed, Mr. Lee stated, because of the combined impact of growing civil aviation and the increase in the number of high-performance military aircraft.

We are running out of airspace and must have new tools and techniques to control air traffic, Mr. Lee said. "Our present practices in separating aircraft, based on time, are absurdly wasteful of airspace when applied to high-speed jets."

CAA plans are to use some of the "ready-made network of military radar" and fill in with additional civil radar. This should meet the needs of the next five or 10 years without imposing too heavy a burden on the taxpayer.

Management Planning & Review At the Fifth Naval District

By Bernard L. Michel, Director

District Records Management Office
Headquarters, Fifth Naval District
Norfolk, Virginia

THE UNITED States Navy virtually floats on a sea of paper. Behind most actions of units of the Navy, there must be hundreds, perhaps thousands of pieces of paper —directives, requisitions, orders, exchanges of information, payroll records, and so on.

Since immediately prior to World War II the Navy expanded rapidly under threats of war or emergency conditions of war. Under such circumstances, an organization so large and so widespread was unable to maintain uniform standards of paperwork and record handling.

Studies by the Navy Department, as well as such bodies as the Hoover Commission, have shown a considerable need for streamlining office methods. In 1941 a directive of the Secretary set up machinery within the Administrative Office, Navy Department, for planning, reviewing and coordinating paperwork systems throughout the Navy.

The Navy, under the guidance of the Office Methods Division headed by E. D. Dwyer as Director, has literally revolutionized much of its paperwork and record-keeping. *(See Systems Magazine, March 1953)*

It is one thing to lay down a program from a central headquarters. But in a field such as office management, it is quite another thing to make it work throughout the far-flung operations of the Navy. Has it worked? is the vital question. The answer is definitely, Yes. It has improved efficiency of manpower utilization, reduced costs of operation, and made the Navy a more effective unit.

The Fifth Naval District with Headquarters at Norfolk, Virginia, covers the area of Virginia, West Virginia, Kentucky, part of North Carolina, and most of Maryland. Within this district is located the world's largest Naval Base, Air Stations, Ordnance Plants, Marine Bases, Supply Activities, a Shipyard, and many other diversified activities.

In this district as well as in all other naval districts there is a small records management staff known as the District Records Management Office. Our job is to coordinate the paperwork techniques and programs developed at the Washington level for the use of activities in our districts. We furnish paperwork methods and systems information to these activities and encourage the installation of approved systems of techniques such as office equipment control, records disposal, distribution of directive-type material, reports and forms management, and correspondence practices.

Microfilming of Air Station payroll cards reduced old files from 6000 square feet to a single insulated cabinet, plus the small space occupied by this machine. 364,000 such cards accumulate every year, representing an ever-growing storage problem until the RMO instituted filming procedure.

We visit each activity frequently to see if we can assist in any way and encourage them to consult us whenever records problems arises. If one activity develops a particularly good method, we try to induce others to adopt it wherever it is applicable. By consulting with the activities we determine the types and scope of programs needed and collaborate in getting them established. When it is learned that a particular problem exists, a suggestion is made as to procedures that should alleviate the problem area. In addition, we conduct training classes in all phases of Records Management and furnish information to activities for use in their training programs. In this way we attempt to pass on their paperwork methods to all hands. Our main object is to give information to activities so that they can improve their paperwork operations.

Frequently activities conduct special studies of some office procedures which lead to recommendation for doing the job better. The larger activities, having management staffs performing this service for their activity, consult us about problems that arise, and we assist in the studies if necessary. Smaller activities and larger activities without management staffs often ask us to come in and survey their needs from start to finish.

If an activity needs new office equipment, we are able to advise in this respect on the basis of our continuing study of the equipment market, but first we must follow three preliminary steps:

1) Review the situation to see if the equipment is really needed.

2) Determine whether equip-

ment already available might be better utilized.

3) Be sure the equipment under discussion represents the best and simplest way of doing the job in question.

Once these factors have been fully considered, and assuming new equipment is required, we gather complete information on what is available, from our own files or from local representatives of various manufacturers, and pass it to the activity.

The results of improved paperwork systems, often in seemingly simple details, have saved many thousands of man-hours as well as dollars. An example is the changed procedure in replying to requests for shipping information coming into a supply activity at Norfolk. Regulations required that replies reach their destination within 48 hours by dispatch or teletype.

Through study of postal conditions in the affected area, it was found that every point within the district and most points outside it could be reached by air mail within 24 hours or less. Simply by having the words "by dispatch" removed from the regulation and changing the office procedure, it was possible for recommendations to be made that would save an estimated 34,000 man-hours a year on the communications network, releasing this time for more important message work—without damaging the efficiency of the system.

Personnel in all types of Navy activities at Norfolk showed great interest in the Navy Department's exhibit, Paperwork Management in the Navy. Guided tours through exhibit by Records Management Office specialist J. Edward Pearce help get the most out of display for Norfolk naval units. Both fleet and shore-based, civilian and uniformed personnel benefit from the RMO program.

In fact, the speed of handling should actually be improved since no time will be lost in waiting for the message to be transcribed at its destination. The person handling the request at the supply activity carries a carbon-interleaved form on a clipboard to the file, writes in the necessary information, puts the carbon copy into the file folder, and the original copy of the reply is ready for mailing.

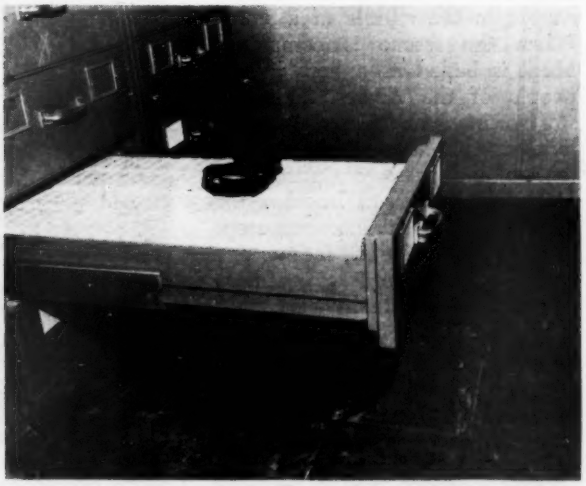
By applying the same procedure to outgoing requests for information on the status of materials shipments, it was found possible to save another 8000 man-hours of communications time per annum.

In another area, some 350,000 civilian payroll cards are accumulated each year. These cards must be retained for several years before they can be transferred to a Records Center. Because of this accumulation of records occupying a large storage area that was needed for other use, a study was initiated to relieve the problem. It was found that the cards could be microfilmed, thereby releasing the storage area. Today, by using a small microfilming unit plus an insulated filing cabinet for the rolls of film, the space has been released.

In another instance a situation

(*Continued on page* 31)

This large store room, now devoted to other necessary records of a more current nature, was formerly filled with old payroll cards for civilian personnel of the Naval Air Station at Norfolk. Microfilming of old cards released entire 6000 square feet of space for other use.



Neat rows of microfilmed rolls are all that are left of years' accumulation of pay cards, which once filled a 6000-sq.-ft. store room. Fire-Resistant cabinet gives protection these records did not have before. Referring to any record is now much easier with a Reader.

Book Reviews

by D. D. Corrigan

Fasten Seat Belts

"THE FOUR WINDS," by David Beaty (William Morrow & Company, 320 pages, $3.50).

Only a man well trained as a pilot, with a deep respect augmented by an intense admiration toward flying, could have written, "The Four Winds." David Beaty distinguished himself as an R.A.F. flyer in the Battle of Britain and in the Battle of Malta, and was awarded the D.F.C. and Bar. Since the end of the war Mr. Beaty has flown almost six thousand hours in commercial aviation, mostly in command of four-engine planes.

Having completed 160 Atlantic crossings, Mr. Beaty well knows the setting for his second novel, "The Four Winds." This is a novel about the Mid-Atlantic Line of British Empire Airways, and Mark Kelston, a dedicated pilot.

The action of the story is compared to a storm. First is the calm, changing to poor visibility and a great increase in wind pressure, than an unnatural quietness, followed by confusion, and ending with a clear sky.

The story opens with a routine flight from Bermuda to the Azores, with Mark Kelston in command of the plane. An air-sea rescue is attempted of a Portuguese freighter caught in the middle of a storm. When the rescue is completed, Mark is hailed as a hero by the people of the Azores. The love story of Mark and Karena, refugee living in the Azores, heightens the tension and pressure thrust upon Mark. His employers lengthen the flying time and eliminate rest stops to the point where air fatigue and any emergency causes confusion and danger. Eventually the climax is reached, tension is eased, and the clear day dawns.

So climb aboard, fasten your seat belt, and prepare for an exciting airborne adventure.

Common Sense Versus Fact

"AN INTRODUCTION TO PSYCHOLOGY," by Harry W. Karn and Joseph Weitz (John Wiley & Sons, 315 pages, $3.90).

While the goal of the psychologist is to seek an understanding of human behavior through understanding, prediction, and control, the object of these two authors is not to make the reader a professional psychologist, but to make him aware of certain necessary scientfic thinking about human behavior. It is not possible to understand people by using common ordinary sense. Will power does not enable people to accomplish something they do not want to do, although people will argue with you that their common sense proves the opposite. Common-sense, uncontrolled observation, prejudice, and wishful thinking have no place in science.

Although "An Introduction to Psychology" is designed mainly for the student, it will prove of value to anyone who perhaps missed a psychology course in college and would like to understand better the behavior of human beings. The case histories, questions at the end of each chapter, the informal presentation, and the frankness in which adjustment problems are discussed, will make this book of interest to anyone who is still trying to learn new things, and has not closed his mind to new subjects.

Applied psychology can be shown through the example of the Link Trainer. An air cadet is trained to fly an airplane on instruments through the use of the Link Trainer, which contains all the controls and instruments that would be found in a real airplane. Situations are created similar to an actual flight. What the cadet learns through this training transfers to a real situation, because the experience is identical. Positive Transfer is also a widely used technique in industrial training.

However, transfers can have negative effects, too, as was found out through a study done during World War II on the designing of control handles. The problem came about because on different models of the same aircraft, controls were in different places. The pilots habits as to these positions could have led to bad accidents. The experiment led to the evaluation that color, size, and shape were of great importance. For example, if the control for engine speed was always a square knob on top, and the control for propeller pitch, smaller with a round knob on top, confusion was reduced.

Dr. Karn and Dr. Weitz scientifically present their facts on psychology. How to study efficiently, worry and nervousness, and feelings of inferiority are persistent adjustment problems. The scope of psychological measurement is enor-

FIRST EDITION—Dr. Elmer Hess (right in civies) President of the American Medical Association, receives the first copy of the Air Force book, "Medical Support of the Army Air Forces in World War II." Making the presentation is Maj. Gen. Dan C. Ogle, Surgeon General of the Air Force, while Mae M. Link, Ph.D., co-author of the volume, stands in the center. The purpose of the book is to narrate the performance of the AAF medical service in support of the Air Force's combat mission. It took over ten years to compile, write, edit and print.

mous when carried on through the administration of a qualified expert. Man is a constantly changing organism in a changing world. Understanding human behavior through scientific methods is a pre-requisite for men and women who are constantly dealing with other human beings.

Market Jargon

"YOU CAN MAKE MONEY ON THE STOCK MARKET," by Everett J. Mann (Macmillan, 216 pages, $3.95).

Mr. Mann, a successful investor, helps the reader to plan the steps for financial success in his personal investment guide. Some pertinent suggestions of Mr. Mann on how you can make money on the stock market are as follows:

1. Do not look for an easy way, secrets, or panaceas.
2. Try to evaluate where the economy is heading.
3. Insurance, saving account, and a home program must be considered along with investment capital program.
4. Familiarize yourself with securities markets and corporate finance.
5. Learn how to read the financial page and follow it daily.
6. Know your stock broker and read investment literature.
7. Market jargon must be understood.
8. Try to select companies with growth possibilities.
9. Be careful of "new issues."
10. Accept the idea there will be some losses, and you will make some mistakes.
11. If stocks are falling, keep "idle money" in other forms than stocks.
12. When the stock cannot advance, sell.

If the reviewer may inject a personal opinion, I would like to pose the question that always occurs to me on books of this type. With no reflection on Mr. Mann, who I do not know outside of his excellent book, I don't understand why men write books on making money if they are so successful themselves. Granted it is a good thing they do, I can't believe the returns are so enormous on publishing technical books as against the time spent writing them. Is it a philanthropic effort or a desire for recognition? Perhaps some one will answer my question.

This book is an analysis of combat intelligence and its relationship to command or to the commander. Combat intelligence should never be treated separately from command as the two are interdependent.

The author has found, as an instructor and intelligence officer, the concepts presented herein to be more readily grasped, digested, and understood than any other.

This is not a study of the entire field of military intelligence and command. It covers only a small section of each field, using only those portions which the author deems necessary for his purpose. It deals with combat intelligence as opposed to strategic intelligence, but parts of the text are applicable to both.

Combat intelligence is produced in wartime or just prior thereto; it has primary application in the field of tactics. On the other hand, strategic intelligence is produced in peace and war, and is more generally employed by high level planners and policy makers. It has many components, the principal ones being data concerning; armed forces, technical, scientific, political, economic, biographical, and communications. Moreover, strategic intelligence deliberately devotes considerable attention to "intentions" of a potential or actual enemy, while combat intelligence is supposed to deal with enemy capabilities rather than intentions.

The difference between strategic and combat intelligence is usually determined by the purpose for which the intelligence is produced, the use made of the intelligence, and the level at which it is used. Frequently it is difficult to define where one ends and the other begins. from "RISKS: THE KEY TO COMBAT INTELLIGENCE," by Colonel Elias Carter Townsand (Military Service Publishing Company, 82 pages, $1.00).

Recommended Reading:

"THE BOOK OF THE MOUNTAINS," edited by A. C. Spectorsky (Appleton-Century-Crofts, 492 pages, $10.00).

The companion volume to 1954's "Book of the Sea." Great variety, and mountains from every continent.

"A HISTORY OF GOLF," by Robert Browning (E. P. Dutton, $6.00).

An entertaining and fascinating account of the history of the game of golf. For dubbers, experts, and those just interested in one of the country's most popular pastimes.

"PIONEERING IN BIG BUSINESS," by Ralph W. Hidy and Muriel E. Hidy (Harper and Brothers, 800 pages, $7.50).

The history of Standard Oil Company (New Jersey) 1882-1911. The authors have had complete access to all company records, and complete freedom of the press, to give this absorbing account of Standard Oil, from its foundation to the famous court decree of 1911.

"WE DIE ALONE," by David Howarth (Macmillan, $3.95).

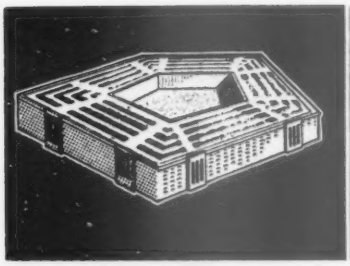
A Book-of-the-month selection, the record of hardship, excitement, and courage. The story of twelve Norwegian saboteurs who sailed for their country with orders to destroy the German airfield near the Arctic Ocean. One man alone escapes—whose only hope is to reach Sweden.

"BIG BUSINESS LEADERS IN AMERICA," by Lloyd Warner and James Abegglen (Harper, 243 pages, $3.75).

The careers and background of 8,000 American leaders are examined and conclusions reached on the typical business leader. A penetrating look at the top executives of America.

OOPS!

We want to correct an erroneous impression which occurred through typographic error in the December article "Philosophers, Principles and Naval Organization" by John Hayes. In 3rd paragraph, 6th sentence, item should have read: "The type command is responsible for maintenance, supply, discipline and individual ship training. The task commander is responsible for the accomplishment of a mission or task assigned." Our apologies to those who naturally became confused by what originally appeared, the original statement in context upsetting the theory of the entire presentation.



Washington Management

Department of the Air Force. Assistant Air Force Secretary David S. Smith reported recently that the Air Force reenlistment surge between July and October had saved the Department over $100 million in retraining costs. An increase of 11,000 reenlistments were reported over the same period the previous year.

Department of Defense. A change in the security-risk procedure to provide for the investigation of suspected security risks before, rather than after, induction into the military services. Such a change is now possible, it was reported due to the fewer individuals inducted and the reduction of the backlog within the investigating branches of the services.

Department of the Army (AFPS). Army personnel headed for Europe soon may receive their specific duty assignments before leaving the U. S., by use of a new electronic punch-card system.

The plan will be tried as an experiment at Ft. Dix, N.J. It will affect only men, not accompanied by families, processed through the overseas replacement station there.

Operating by telephone and radio connections to USAREUR Hq. in Heidelberg, Germany, the electronic system will determine the duty station in Europe for individual enlisted men.

An assignment team from USAREUR will be stationed at Ft. Dix to operate the system. Using punch cards this team will compile the qualification data of replacements arriving at Ft. Dix.

The information will be transmitted by electrical impulse to USAREUR Hq., where the individual assignments will be determined by machine methods and sent back to Ft. Dix.

The men can then be shipped directly to their new assignments in Europe without stopping at replacement depots. The Army estimated that replacements will reach their duty stations three or four days sooner under this system.

United States Marine Corps. Major General Vernon E. Megee, USMC has been appointed as Assistant Commandant and Chief of Staff of the Marine Corps. General Megee, long prominent in Marine Corps Aviation, is the first flier to hold this important post.

Department of the Navy. The first of several selection boards to pick approximately 500 Naval Reserve and temporary officers for transfer to the Regular Navy will meet next month in Washington. A call for Reserve and temporary officers to apply for transfer was issued in BuPers. Inst. 1120.12D.

Department of the Army. The Army is going to do the grocery shopping for the Navy, Air Force and Marine Corps. The new plan augmented by the Department of Defense makes the Army responsible for everything having to do with food for the other services. In each geographical area, the secretary of the Army will choose a single military installation, regardless of the service to which it belongs. That installation will be the food depot for all bases in the area.

Department of Defense. A near-final decision to set the new defense budget at about 34½ billion dollars was reported reached recently by President Eisenhower and his military and budget experts. President Eisenhower spent about an hour and a half at a conference in his headquarters in the Gettysburg Post Office. With him were Secretary of Defense Wilson; Admiral Arthur Radford, Chairman of the Joint Chiefs of Staff; Budget Director Rowland Hughes; Deputy Director Percival F. Brundage; Assistant Secretary W. J. McNeil; and Colonel Andrew Goodpaster, Secretary of the White House staff.

Department of the Army. Secretary of the Army Wilber M. Brucker recently announced an internal organizational adjustment within the Army Staff which is designed to clarify and centralize areas of responsibility among the Army's Deputy Chiefs of Staff.

The reorganization is designed to improve administration of the Army. Both the Secretary of the Army and the Chief of Staff have stressed unity of direction of all phases of Army operations, which the new arrangement is designed to achieve.

With the exception of the Offices of the Assistant Chief of Staff for Intelligence, the Chief of the Reserve and ROTC Affairs, Chief of the National Guard Bureau, The Inspector General, and The Judge Advocate General, all military staff functions will now be placed under direction of a Deputy Chief of Staff, the Comptroller of the Army, or the Chief of Research and Development.

In two instances the title, as well as the functions of a Deputy Chief of Staff will be revised.

Lieutenant General C. D. Eddleman, now Deputy Chief of Staff for Plans, will have staff supervision over the Offices of the Chief of Psychological Warfare, the Chief of Civil Affairs and Military Government, and the Chief of Military History.

Lieutenant General W. L. Weible now Deputy Chief of Staff for Operations and Administration, will be designated Deputy Chief of Staff for Personnel, and will have staff supervision over the Offices of The Adjutant General, the Chief of Chaplains, the Chief of Informa-

tion and Education, and the Provost Marshal General.

The functions of the Deputy Chief of Staff for Logistics, Lieutenant General C. B. Magruder, remain unchanged, with the technical services continuing to report to the Chief of Staff through that office.

The functions of the Comptroller of the Army, Lieutenant General L. L. Williams, remain unchanged, with the Chief of Finance continuing to report through that office.

The Chief of Research and development, Lieutenant General James M. Gavin, is maintained at the Deputy Chief of Staff level.

This reorganization does not affect the offices reporting to, or the channels of communication existing in, the offices of the Secretary of the Army.

Department of Defense. Grayson A. Tucker, a World War I Navy veteran and former International Harvester executive, has been named Deputy Assistant Secretary of Defense for Applications Engineering. Since 1953, Mr. Tucker has served as Director of Ordnance and Transport in the Office of the Assistant Secretary of Defense.

Department of the Army. Under a revised deployment plan, the 5th Infantry Division will be permanently stationed at Ford Ord, California, when it returns to the United States from Germany this month. The stationing of the 5th Division at Fort Ord will permit the activation of an additional Airborne Division at Fort Campbell during fiscal year 1957 to replace the 11th Airborne Division in the Continental United States.

Department of the Navy. Plans have been announced to establish a $40,000,000 jet air field in the vicinity of Meridian, Massachusetts, as part of the Naval Air Training Command. The site selected after many months of study, will be the home of about 1,200 enlisted men and 115 officers, and will support advanced training operations for aviation cadets. The Navy plans to ask Congress at its next session, for authorization to acquire the land.

Department of the Air Force. A 35% increased training load which is expected to continue through the fiscal year, has been placed in effect at Lackland Air Force Base, Texas. The San Antonio base which heretofore received approximately 44 per cent of new Air Force enlistees, will now be allocated approximately 60 per cent.

Department of the Army. Major General John G. Van Houten has been assigned effective next month as Commanding General of the Military District of Washington. General Van Houten has been Commanding General of the 8th Infantry Division, Fort Carson, Colorado, since September, 1954.

Machine Mops Up Runways

The problem of flooded airfield runways, particularly dangerous for jet aircraft, has been solved in Britain with the aid of a new device capable of sucking up 500 gallons of water.

The machine has been evolved from the turf-drier used on cricket fields in Britain when "rain stops play." Vickers-Armstrongs, makers of the Viscount turboprop airliner, have placed their order for use at their airfield.

"With this machine," the manufacturer says, "the effects of a bad storm can be eliminated in minutes."

The manufacturer is Climex-Fraser Tuson Ltd.

First Flight of Supersonic F-105A Fighter-Bomber Announced by USAF

The United States Air Force last month announced the first flight of the Republic F-105A fighter-bomber on October 22, 1955, at Edwards Air Force Base, California.

Initial flight of the F-105A was made by Republic's chief experimental test pilot Russell M. "Rusty" Roth approximately one month ahead of schedule and lasted for 45 minutes. It exceeded the speed of sound on its maiden flight.

The F-105A has short, very thin swept back wings, a long cylindrical fuselage, wing root air intake ducts permitting radar equipment to be installed in the needle nose, and a one-piece flying tail set low on the aft section of the fuselage. It is equipped with a Pratt and Whitney J-57 engine.

The F-105 was developed to fill a need for a supersonic fighter-bomber capable of delivering nuclear weapons as well as heavier loads of non-atomic bombs and rockets at extremely high speeds.

Navy Orders Two Additional "Texas Towers"

The Department of the Navy today announced the award of a contract for the erection and fabrication of two "Texas Towers" (Off-Shore Radar Warning and Weather Collection and Reporting Stations) to a joint venture of the J. Rich Steers, Inc., and Morrison-Knudsen Co., Inc., of New York, for $16,431,000.

The Navy's Bureau of Yards and Docks, acting as construction agency, will erect these towers for the use of the Department of the Air Force. One tower will be located off the coast of New England, approximately 100 miles southeast of Cape Cod and the other approximately the same distance southeast of New York City.

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Conservation through Suggestions

Strategic Air Command, Omaha, Nebraska. $1000 has been set aside by SAC to be awarded to the central welfare fund of the base which turns out the largest number of adopted military management improvements this year. Until Congress approves the use of appropriated funds, as in the case of civilian employees, welfare funds must be used.

White Sands Proving Ground, New Mexico. Three WSPG were awarded $205 recently for management-improvement suggestions. One of these, Ira A. Hartman, is a Co-op student from New Mexico A&M College, whose award represented an idea for a time-saving device to be installed during the calibration of Foxboro Recorders in the Climatic Section. Stephen J. Ducsai and Frank G. Gonzales were the other lucky winners.

Naval Supply Center, Oakland, California. Oranges with a new look is the theme of an experiment which has been under way for over a year and, now finalized, will result in savings exceeding $4500 annually. With new-styled orange crates using both wire-bound wooden and fiberboard telescopic type crates than won't burst at the seams when caught in a cargo-net squeeze, fruit loss has become a negligible figure.

Davis Monthan Air Force Base, Arizona. Collaborating on a device which permits the removal of the turbine wheel on the J-47 jet engine without its removal from the aircraft, paid off $25 each to Master Sergeants Mark and LeRoy Rose, brothers, assigned to the 43rd Bomb Wing.

First Army, Governors Island, New York. Major savings have been accomplished by First Army installations during the past year which have resulted not only in increased efficiency but in making the dollar-savings available to other projects. One of the most interesting and largest savers is being accomplished at FORT DIX. Rendezvous points and packet shipments of trainees rather than individual travel, will result in saving of near $1-million a year. The new system involves transporting trainees to new stations, after they complete initial furloughs, by contracts for commercial transportation to pick them up at various points along the route of travel. This group travel has proven much cheaper than pullman and meal tickets issued on an individual basis.

Naval Air Station, Jacksonville, Florida. Loren F. Bazinet, parachute rigger first class, of Composite Squadron 62, who has come up with several noted suggestions has done it again. By developing a new method of recharging aircraft oxygen systems, a safer and faster refilling is possible. Bazinet, was instrumental in a modification of the "Dilbert Dunker" which simulates an airplane crashing at sea, and a new way of packing a 28-foot parachute which can be done with one man instead of two or three. We agree Bazinet is a valuable man to the United States Navy.

Air Research and Development Command, Baltimore, Maryland. Brigadier General Don Flickinger USAF recently presented Dr. Morton Alperin, one of the command's top civilian scientists, with a cash award of $300 and an outstanding Job Performance Rating. Dr. Alperin is Director of OSR's Office of Advanced Studies located in Pasadena, California.

Utah General Depot, Ogden, Utah. For their suggestions to improve government operations, 20 civilian employees recently shared cash awards totaling $855. Mr. Glen A. Yates was the top winner with a check for $275 representing his suggestion in devising a 400 cycle "Receptacle Tester" for testing generator sets used in operating equipment in the field. The suggestion has been forwarded to the Office of the Quartermaster General for consideration of Army-wide adoption.

Naval Supply Depot, Scotia, New York. Eleven employees were winners in the latest Beneficial Suggestion Awards made at the Depot. Joseph Aversano and Nicholas Viscio topped the list with Miss Jean Coon for her idea of accomplishment of work on a work order running a close second.

Lycoming Division, AVCO, Stratford, Conn. A check in the amount of $500 highlighted the presentation of 20 awards last month by the Employee Suggestion Program committee. William Adams, a leadman machinist, was the recipient of the leading award which together with 19 others, totaled $893.67. Awards for the entire program since inception now total $26,-940.52.

Lackland Air Force Base, Texas. Cost-cutting ideas submitted by seven military personnel have been approved for cash awards by the Wing Management Improvement Committee. M/Sgt. James M. Stephens, Lt. Richard N. Hill, M/Sgt. Carl B. Anders, A/1C Jerald T. Pyle, A/2C Ralph S. Wholey, A/2C Joe L. Lackey and 2nd Lt. David C. Chickering are the winners in awards ranging from $25 to $5.

Naval Air Station, Alameda, California. Sixteen Naval Air Station employees were honored in brief ceremonies recently for Superior Accomplishments and Beneficial Suggestions. Captain L. E. French, USN, NAS Commanding Officer, announced the top award of $300 went to Thomas E. H. Love of the Supply Department, for a suggestion regarding the use of an electric marking machine for printing stock numbers on packages. First year savings from the suggestion have resulted in $19,092 being made available to the government.

Air Force Reserve Flying Center, Miami, Florida. Major General Kingston E. Tibbetts, USAF, recently presented a check for $500 to Mr. Edgar R. Sayenga who discovered a way to re-use aircraft supercharger covers which were being discarded when cracked. By welding the cracks in non-stress areas, 600 covers costing $300 each are being salvaged at Miami alone.

Fort Dix, New Jersey. Military prisoners working in the stockade shop have repaired approximately a quarter million dollars worth of Quartermaster equipment. An average of about 20 men are utilized daily in the repair of mattresses, covers, tentage, blankets, sheets, pillowcases, canvas and web equipment, under the direction of Colonel Robert A. Gaw, Post Quartermaster.

Fort Richardson, Alaska. Colonel Larry J. O'Neil, Army Comptroller has estimated that $298,000 and more than 76,000 man-hours will result from management improvement activities throughout the Army in Alaska, during the fiscal year 1956.

Lockheed Aircraft, Marietta, Georgia. A novel savings was reported recently of more than $7000 per year by saving "string". Special string costing $2.95 per ball is used in tieing bundles of electrical wires in the 600-m.p.h. Stratojets. Each workman formerly cut his own cord with a knife in varying lengths which resulted in a lot of string and valuable time wasted.

Headquarters Oakland Army Terminal, Fort Mason, California. A new low for average on-hand-time for household goods was established recently. The average turn-over for Zone-of-Interior-bound household goods of military personnel was 7.2 days, including time for assembling consolidated carloads for shipment. Household goods being sent overseas were on hand an average of only 3.5 days.

Naval Ammunition Depot, Charlotte, North Carolina. Nearly $8,000,000 in 40mm components and ammunition have been placed in a ready-for-issue condition, and when all projects have been completed more than $16,000,000 will have been saved. Already 2,700,000 projectiles have been reworked at a cost of five cents each. Ultimately ammunition worth about $9,750,000 will be recovered and made ready for issue. These are but a few of the many projects underway at the Depot all designed in the interests of conservation.

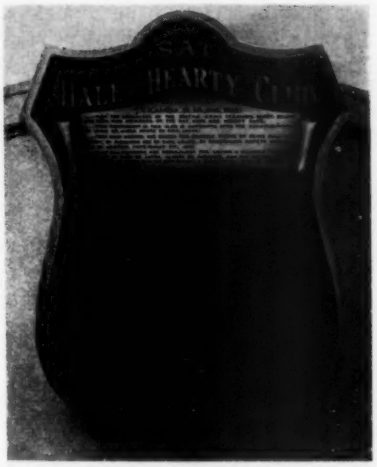
Strategic Air Command, Offutt Air Force Base, Nebraska. Nine airmen were the recipients of $675 recently for outstanding management improvement suggestions. Five of the nine winners received $100, the highest amount that can be awarded.

Savanna Ordnance Depot, Savanna, Illinois. Mr. Charles M. Lewis, Explosive Operator, picked up some extra Christmas cash recently for his idea of a flat cart to run under the hopper on the vacuum machines.

U.S. Navy Base, Bayonne, New Jersey. An idea that saved the Navy an estimated $65,756 on rent of chemical containers won $555 for Mr. Vincent J. Corless and Mr. Charles Schneider. The plan calling for a quick transfer of chemicals from company-owned carboys to Navy-owned containers amounts to $7 per bottle.

Reese Air Force Base, Lubbock, Texas. Colonel James C. Watkins, Maintenance and Supply group commander, recently presented a letter of appreciation and a check for $105 to Mr. George O. Dean for his suggestion of Deicer Boot tools which cuts in half the time required to install deicer boots.

Seattle Army Terminal. Something new in management tools for encouraging savings of sick leave and recognizing deserving employees is the Seattle Army Terminal's "HALE AND HEARTY CLUB". 44 employees were recently honored, each of whom had accumulated more than 1,000 hours of unused sick-leave which represents a saving of 46,565 hours of accumulated sick leave. At a mass ceremony before division chiefs, supervisors and fellow workers, the 44 were given certificates by Colonel Jeff Barnette, SAT Commander, who also unveiled a plaque containing the names of all members.



Displayed in the lobby of Building 1, Seattle Army Terminal, is the Hale and Hearty club plaque, containing the names of 44 charter members of the club. To qualify for membership it's necessary to accumulate 1,000 or more hours of sick leave. U.S. Army photo.

Pensacola Naval Air Station, Pensacola, Florida. For his beneficial suggestion on improving the method of operation of air conditioning equipment, Mr. William E. Cater, was recently presented with a check for $300 by Commander R. M. Kercheval, USN.

Raritan Arsenal, Metuchen, New Jersey. A recently sponsored "SUGGESTION WEEK" by Colonel W. W. Gerken, Commanding Officer and the Incentive Awards Committee, turned out to be even more successful than planned. More than half of the suggestions received came from employees who had never before submitted one, and

Installation and Base Commands

— In answer to several inquiries, ARMED FORCES MANAGEMENT is pleased to print your management improvement and cost-saving suggestions. Available space at times precludes our reproduction of your entire release, and we request you to keep them about the size used in these columns. It is gratifying to hear how other military organizations have benefited from your published suggestions, and in the interests of our national economy we hope to expand this section in the near future.

The Editor

are now expected to be repeaters. Coupled with an excellent promotional campaign, Suggestion Week has stimulated interest to the point that a high-above-average number are still being received. Details for the campaign may be obtained by interested installations by writing to Miss Elvira C. Vail, Executive Secretary, Incentive Awards Committee.

Scott Air Force Base, Illinois. Mr. Eugene I. Eacho was a recent winner of $70 for his suggestion concerning the purchase of a tool to remove dirt, stones, or other debris from service boxes. Joining him was Mr. Elmer J. Lanter, another winner in Incentive Awards program at Scott Air Force Base.

U.S. Naval Ordnance Missile Test Facility, White Sands Proving Ground, New Mexico. Approximately $4000 was saved with an idea of converting non-serviceable overseas shipping boxes into commercial gas storage rooms at a cost of $50. New construction of the rooms would have cost at least $1,000 each.

Seattle District Engineer, Seattle, Washington. A joint suggestion by Conrad F. Troxell, Andrew Freeman, and J. E. O'Leary of wrapping a wire rope around the cutter head of the "Dredge Swinomish" to prevent large stones from plugging it, won a group award of $475. Presentation was made by Colonel N. A. Matthias, District Engineer.

Naval Training Center, Bainbridge, Maryland. Letters of commendation and cash awards totalling $115 were recently presented to George C. Gibson, Haines G. Newswanger and Lester P. Jones for their design and development of a new drain strainer which eliminated costly repairs to clogged drains.

Letters to the Editor

I recently had an opportunity to read the October, 1955 issue of your ARMED FORCES MANAGEMENT magazine. I found the article entitled "A Canadian Viewpoint on the Making of an Executive" extremely enlightening and I would like a copy for my own use. Would it be possible to secure a copy of that issue? Please inform me of the proper procedure required. Thank you.

Stanford Miller
Arlington 1, Virginia

Dear Mr. Miller:

We have forwarded you a copy of the October issue with our compliments, and should you desire an individual reprint of the article, we are certain that by writing to the ROYAL BANK OF CANADA, Head Office, Montreal, Canada, asking for the Monthly Newsletter in which the article appeared, they will be glad to send you a copy.

3 December 1955

Dear Editor:

Have you ever thought of publishing a breakdown on each Department within our three major Defense services so a reader such as myself might know in advance of your monthly features exactly "what" each Department is responsible for? Perhaps you might call it a "Mission Breakdown", and I think other readers would join me in this request. After 6 years in the Air Force, I'm sorry, but I don't understand the responsibilities of all of the services. I think I had better not sign my name and hope you will understand.

D.P.D.
Washington 25, D.C.

Dear Sir:

Thank you for your letter, and we shall attempt to give you the desired information in the next five issues starting with your own service, the United States Air Force.

Dear Editor:

I enjoyed Mr. Matejka's letter in your last issue in support of the Finance Corp's history. I agree with him completely, we were one of the first Corps founded in 1776.

A proud member—

Dear Member:

Thanks for your note, and we're proud too, as without the Finance Corps, we'd all be a little short on pay-day

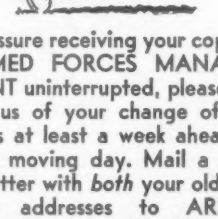
Weber Establishes Escape Research Branch

A new research and development department which will specialize in the problems of escape from supersonic aircraft, has been established by Weber Aircraft Corporation, Burbank, California, according to announcement by E. K. Meredith, President.

Whereas Weber has been previously concerned with the manufacture of ejection seats to military specifications, the company's new department will work in the field of pure research leading up to the establishment of such specifications, according to Meredith.

In addition to the study of completely new escape concepts and the structural requirements of such systems, Weber will work with leading aero-medical consultants to determine human capabilities under supersonic escape conditions.

ARE YOU MOVING?



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Top Combat Unit

The Army's 32nd Infantry Division is generally credited with more combat time than any other WWII division. In action in the Pacific theater, the division piled up more than 600 combat days.

Modest Texas

The biggest thing since Edna Ferber wrote "Giant" hit Texas recently. A bill was introduced in the current session of the Texas legislature to put the slogan "Tremendous Texas" on auto license plates.

Management Planning

(*Continued from page* 23)

existed whereby information that was posted to 4 x 8" cards had to be reported on the higher authority on a periodic basis. It was found after making an analysis that microfilming of the records and forwarding the film to the requiring activity was much simpler and cheaper than typing the information or making copies by a more expensive method.

Similar examples of savings in time, money, and space could be quoted at great length. The important fact remains, however, that we have effective machinery for solving these problems—not just occasional interest on the part of a group, but a continuing program of people devoting their full time to nothing but looking for ways to do things better.

It takes this sort of concentrated effort to put a program such as this into effect and keep it working. There is a need for a constant process of education of management personnel in various activities, to make them aware both of the problems that exist and of the ways of solving them.

An example of this educational effort is the large exhibit, "Paperwork Management in the Navy," which was prepared some months ago by the Navy Department in Washington and now in making the rounds of Naval District Offices throughout the country. In fifteen large display panels it tells the full story of what the Navy is doing to streamline its paperwork operations.

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For more facts request No. 27 on reply card

What Management Means to Me

(*Continued from page* 15)

because the organizational attitude is a bright reflection of the manager's attitude. A spirit of willing participation flows from right attitudes, unleashing abilities that achieve maximum effectiveness.

Building Creative Thinking

Management is an instrumentality to release and stimulate the creativity of subordinates. Creative thinking normally occurs only with unhampered exchange of information among people at different levels of authority. It requires opportunity to make a mistake without undue penalty. It needs an environment in which subordinates can grow in their own right. Management provides the opportunity, and imposes upon the individual manager a duty, to do everything possible to help all in the organization live more fruitful lives so they may derive more satisfaction from their work.

The manager must help and participate in the growth of his subordinates. This implies self-development of all concerned because personal growth seldom occurs by fiat. But the manager has a responsibility to aid the subordinate through leadership and by making available opportunties for participation in activities which contribute to growth.

Management is Opportunity

Management is opportunity to give meaning to organized activity by contributing the guidance necessary to produce the results needed by society. It is a challenge to continue to grow personally and to aid others in their own self-development. It is a trusteeship with responsibility to those in the organization itself, to all affected by the activities of the organization and to the public-at-large because the impact of management is decisive.

The Armed Forces Management Association is relinquishing their space this month so we can bring you the first installment of an article by association member Colonel Leland B. Kuhre. This feature will run several months and Colonel Kuhre having been affiliated with the Corps of Engineers makes it appropriate we start with this issue.

ORGANIZATION—From Empiricism to Principle

By Colonel Leland B. Kuhre

Chapter One

IF YOU WERE asked to locate your organization on the probability curve below, where would you put it? If you think that your organization is about average in releasing the full potential of every person in it, then point "A" would be the location—getting 30 per cent of the total potential contribution of its people.

The curve on the left represents an estimate of the probable frequency distribution of all organizations today—military, business, government, and social—according to our effectiveness in using empiricism to release the potential energy of the individual.

Why should not the whole curve move to the right where the average effectiveness is, say, 80 per cent? It can—if we can break through the ceiling of empiricism and find principle; and that is our purpose in this multi-part article.

"Empiricism", in general usage, is "pursuit of knowledge by observation and experiment; a tenet arrived at empirically." An "empiric" in organization would be one "who bases his knowledge and practise on experience alone." As we shall see, we do not have a theory of organization, and thus we are empirics following a school of empiricism because we have no choice.

"Principle", in general usage, is "a fundamental truth; a comprehensive law or doctrine from which others are derived, or upon which others are founded". In our usage here, the expression of a principle should be a basis for reasoning and should contain some balance of cause and effect: For example, a principle that A varies directly as B tells you that if you maximize B you will cause A to be a maximum. The so-called principles of organization we see today do not meet these requirements; they are empirical rules like "span of control"; or *topics* like "delegation of authority" for application by personal intuition.

With the exception of the theory of Jethro in about 1900 B.C. (Exodus 18), the recorded history of man from its beginning until the present shows him to be an empiric in the practise of organization of men for human enterprise. This has not been the result of a choice between alternatives. There is usually something deep in the customs, philosophy and instinct of man that causes his empirical way of doing things. In the history of organization for human enterprise we find two fundamentals that condition and guide man's approach: the example and practise of a family type organization; and a belief that individual man is the basic unit of the structure. These two fundamentals have a long history; let us recall a few of the highlights:

From the earliest records, the family was the organization unit of society. (In the sense we are using it, "family" is not limited to a group of parents and children as used today. It could be a tribe, clan, or other grouping under one head and one authority).

About 1900 years ago the family concept was formalized by the Romans when they established the *familia* and designated the *paterfamilias* as the head with the authority and legal status. The *familia* was composed of slaves, servants, and others as necessary in addition to adopted and blood relatives and offspring.

About 1400 years ago, the family concept was formalized in Europe in the *manor* of the Middle Ages. The *manor* was an organization for agriculture. The head and the authority was the lord; and the working members of the manor were serfs. This continued for about 1100 years or until about 400 years ago.

The next 200 years was the Age of Mercantilism; and the family concept of organization was continued in the form of the *companies* formed for trading purposes. The word "company" has the family

concept within it, coming as it does from the Latin *com* (together) and *panis* (bread)—(to eat bread together). "Captain" (the head and authority) is from the Latin *caput* (head). Thus the *company* and its *captain* continue the family concept of a single authority at the head who *organized* the family internally in terms of people according to his personal ideas. The strength of the *one head* authority concept is reflected in the title given to additional officers in the company: The title *lieutenant* was coined from the French *lieu* (place) and *tenant* (holding) to express the idea of "holding the place of" the captain. The ship's company at sea with its captain, and the army company on land with its captain are unchanged in basic concept to this day.

Commencing in about 1800, steam power caused machines and the factory; and, naturally, the family concept was used to form the organization. But a difference in relationship between the head and the members of the organization appears: They did not live or eat together; the head of the factory was not necessarily concerned with the people outside of working hours. Of primary consideration was the machine and other physical plant; the people were *used* to operate the machines and the factory. From the French, the verb *employer* (to use) fitted this new situation; and the head of the new organization became known as the *employer*. Consequently the people in the organization became known as *employees* (those being used). The lord-serf idea is here except that the bonds of servitude were wages. (J. C. Penney apparently sensed this meaning when he refused to use the word "employee" in his nation-wide organization; he used "associate".)

About 100 years ago the corporation was established in the United States as a legal entity, but here also the family concept was continued; the president of the corporation was to be the head and the authority; and the internal structure of the corporation remained a problem for empirical solution according to the ideas of the president.

Thus we come to the present day; and with us from centuries of custom and practice comes the family concept of organization, where the head uses empirical knowledge to match people and functions.

During the sweep of time we

Colonel Leland B. Kuhre, Corps of Engineers, U. S. Army, was born in Plato Center, Illinois, educated in grade and high schools in Indiana and North Dakota, graduated from West Point in June 1925 with degree of B.S. in engineering, and was commissioned Second Lieutenant in the Corps of Engineers.

In 1927-28 took post-graduate work in Civil Engineering at Cornell University and received degree of Civil Engineer. In 1929, graduated from Engineer School, Fort Belvoir, Virginia. From 1937-41, served as Associate Professor of Military Science and Tactics at State University of Iowa.

In 1945, attended Naval War College, Newport, Rhode Island. During 1947-48, student at Industrial College of Armed Forces. In 1953, was selected to take course in "Management Problems for Executives" at University of Pittsburgh.

Early in his career, Colonel Kuhre developed a keen interest in the field of Organization and Management—particularly in civilian organizations, because of the extended civil-type duty of the Engineer Officer in the U. S. Army. He has designed several new organizations and placed them in operation—some nation-wide in scope. He has written articles and monographs toward developing organization as a science, including:

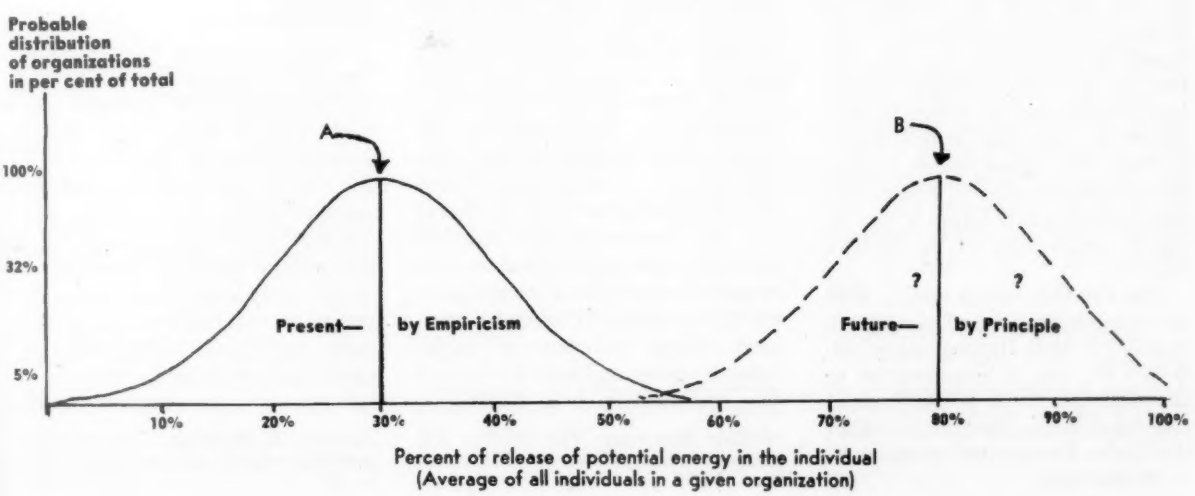
THE SCIENCE OF ORGANIZATION, a booklet published by Office, Chief of Engineers, U. S. Army, in 1946.

CLOSING THE CIRCUIT, an article in The Military Engineer, February 1949, to express a concept of line versus staff and the distinction between them.

FROM THREE-IN-ONE—TO THREE, an article in The Military Engineer, June 1950, to set forth the concept that organization charts were ineffective because too much was shown on one chart.

Recently, Colonel Kuhre commanded the Granite City Engineer Depot—an industrial type operation employing more than 2,000 civilian workers with an additional number of troops in training. Occupying 1,000 acres, the Depot serves the Army and Air Force throughout the world. It receives, preserves, stores, and issues Engineer construction and allied equipment; rebuilds construction, electronics and topographic equipment; and provides specialized training of Engineer maintenance and supply troop units and individuals.

Estimate of the Effectiveness of all Organizations in the United States—Military, Business, Government, Social.



have so broadly generalized above, there were special situations where the large operating areas of organizations required a physical spread of the organization—military operations for example. The need s-t-r-e-t-c-h-e-d the family concept into an empirical pattern. Especially has this expansion been forced during the past 50 year surge of technology and mass production. The draftsman's symmetry in arranging blocks on charts tends to camouflage the underlying concept: But when you dig beneath the chart pattern you will generally find the *pater* at the top and others trying to be *paters* as you go down the structure. To check this:

Start at Top

Let us start at the top of many organizations – military, government, business, social—and ask the head for his personal method of the design, construction, operation and maintenance of the structure below him. (He must have *some* kind of a basis for progressing from situation to decision.) What would we get?

We would get a wide variation of personal methods – almost as many as the number of people giving them. But when you reduced them to a common basis you would find the family concept. What else could it be other than the "natural" concept that has been the example and the practise since the *paterfamilias* and the *familia* of Rome?

The *pater* of today makes up his list of functions that he wants his *familia* to handle, and he delegates *his* authority to people to handle the functions for him. A chart would show the *pater* at the top with a varying assortment of "functions" reporting to him.

Now let us ask the same question of the people next to the *pater* and we will get the same type answers. Each one has delegated the authority of the *pater* to another row of functions. And again the common basis will be the family concept in terms of people. Repeat the process until the last person is reached and the replies will still have the same common basis—the family concept in terms of man.

Thus, the organizer of a new and unprecedented organization-to-be (or the reviser of an existing organization) is forced to rely on his personal solution; and there is available to him the patterns of other organizations, experiences of others, and his own experience—all brought to focus on the problem by his native organizing ability. What more can he do?

Just in case our organizer might start looking for a book to help him, let us save him the waste of time in a fruitless search: William Brownrigg summed up the situation: He relates the story of a friend of his—a professional man—who was suddenly faced with an unprecedented problem of organizing some 5,000 people. The friend asked Mr. Brownrigg to "recommend a text book or two or three of them that will give me a sound idea of how the administrative process works ..." Mr. Brownrigg states that "Of necessity, my answer was in the negative. Since then I have repeated this question to several prominent college professors of public administration, and each has agreed that my answer was correct.... Many successful administrators ... will admit ... that they navigate largely by dead reckoning, and fly as it were by the seats of their pants. As a result they are not able to anticipate and plan as they would like."[1]

Lest the organizer might think that Mr. Brownrigg may have overlooked something published in the military services, let me assure him that I have searched that area as thoroughly as I could for twenty years without success. The Army has a good start in Chapter 1 of FM 101-5 as its "principles" but it is not adequate; and I have never found it used in practise.

Lest our organizer might still think that there is a theory of organization somewhere, I would refer him to Kenneth E. Boulding who has examined this point very exhaustively to conclude: "I am not suggesting that the theory of organization as its exists today is adequate; indeed, it is scarcely more than in embryo. Nevertheless, the idea that a theory of organization is possible is one of the most important ideas of our time."[2]

What results are we getting from the school of empiricism?

Let us use as our indicator the organization that has developed one of the highest forms of empirical pattern; it is one established by an Army table of organization. Each organization is designed for a specific type mission; and the design is the result of the summation of all of the empirical knowledge accumulated throughout the long history and experience of the Army and focussed into the specific table of organization.

Let us narrow our indicator down to combat units, and more specifically to infantry rifle companies; because here is where our know-how is unquestionably concentrated to the end of producing the best and most effective organizations. During World War II we gave these organizations the best training we could devise, the best and most complete material we could produce, and the best leadership we could find or develop. And all of this was for one purpose—for the

[1]William Brownrigg, ***The Human Enterprise Process***, University of Alabama Press, 1954. pp. 7-8

[2]Kenneth E. Boulding, ***The Organizational Revolution***, Harper & Bros. 1953. p. 66

Largest Turbine-Powered Transport Helicopter Flown by Piasecki

PHILADELPHIA INTERNATIONAL AIRPORT—The world's largest turbine-powered transport helicopter—the 40-passenger YH-16A "Turbo Transporter" – was flown here recently in the first public flight demonstration of the huge craft.

Designed and built by Piasecki Helicopter Corporation, Morton, Pa., for the U.S. Air Force's Air Research and Development Command, the YH-16A is powered by two YT-38 shaft turbines—gas turbine engines whose power is harnessed to turn the Turbo Transporter's two giant rotors, rather than to provide thrust. Allison Division of General Motors is the designer and builder of the turbine engines.

The YH-16A, which weighs over 16 tons, has a top speed of approximately 150 mph. Its fuselage, which is 77½ ft. long, is large enough to accommodate three jeeps. Each of the three-blade tandem rotors of the Turbo Transporter measures 82 ft. in diameter.

organization to execute its type mission when it became placed in the appropriate situation.

Let us now follow through and see how effective these organizations were. Let us accompany Colonel S. L. A. Marshall to both the Central Pacific and European Theaters in World War II and observe his post-combat mass interviews with approximately 400 rifle companies. During the preliminary questioning you hear battalion, company and platoon commanders say that they believed every man fired his weapon at one time or another in the engagement just terminated.[3] Let us reflect for a moment on the implications of that:

Idea-to-Act Transformer

An organization can be visualized as an idea-to-act transformer—that is, the idea of the head flows through the organization to be transformed into acts at the end-of-the-line; and the summation of the individual acts of accomplishment is the accomplishment of the organization. Thus, a measure of effectiveness of the organization is the ratio of the number of end-of-the-line acts performed compared to the number that should have been performed. In the cast at hand the intent and expectancy of the commander by his own statement was that every man fire his weapon.

We listen to the facts being developed in the assembled companies where the "men spoke as witnesses in the presence of the commander and junior leaders"; we watch the facts go into the statistical tabulation; and we wait for the over-all figures after this has been done for approximately 400 companies. Here are the results:

"on an average not more than 15 per cent of the men had actually fired at the enemy positions or personnel with rifles, carbines, grenades, bazooka, BARs, or machine guns during the course of an entire engagement. Even allowing for the dead and wounded, and assuming that in their numbers there would be the same proportion of active firers as among the living, the figure did not rise above 20 to 25 per cent of the total for any one action. The best showing that could be made by the most spirited and aggressive companies was that one man in four had made at least some use of his fire power.

"Naturally the commanders were astonished at these findings, though at the conclusion of the critiques, there was no case of a commander remaining unconvinced that the men had made a true report."[4]

How can we be satisfied with the school of empiricism when its best efforts produce organizations with an average effectiveness of 15 per cent?

There is another indicator in the Department of Defense as a whole; it estimates that the individual, alone, is productive for only about 35 per cent of his potential. The problem of releasing the other 65 per cent is left essentially to "leadership", which is another way of saying "follow the traditional family concept".[5]

In business all we need is a general familiarity with the facts of the labor-management conflict to see that the potential energy of the individual is only partially released. Even the limited results obtained by incentive systems indicate a great unreleased potential.

In government, Luther Gulick has summed it up in these words:

"We depend in every large human organization on the motivation, drive, and creative teamwork of each part of that social entity. Whenever studies have been made, even of the smallest working units, the investigators have found evidence of extraordinary differences in human productivity and creativity, depending on the internal social structure and the resulting individual and group motivations. . . . Industry studies are full of similar evidence all the way from the Hawthorne experiment down to the most recent work of Francis Lickert, Peter Drucker, and William H. Whyte, Jr."[6]

Mr. Gulick cites an example of releasing 20 to 30 per cent more of the potential of individuals engaged in minor activities in the New York City government; and this was caused by a change in only one of the many elements in attitude.

You can make your own estimate: Assume, if you will, that a 100 per cent release of potential is being had in the person who is enthusiastic, interested, creative and cooperative; whose work "promotes the growth of personal character by affording opportunities for personal decision, exercise of judgment, and individual responsibility";[7] and whose job meets this specification: "For the individual the job is the center of life, and its values must be in harmony with the rest of life if he is to be a whole and healthy personality".[8]

Let us take the other extreme as being a 20 per cent release of potential: This is the unhappy individual to whom the job is a drudgery, who dislikes coming to work, who watches the clock for breaktime and the end of a long day. In short, this is the person who contributes just enough to keep from getting fired.

With these two standards for the extremes, we can take a random sample of the total number of people in any organization starting at the very top. The sample should be stratified to cover all pay scales from the lowest to the highest and all classes of work from the top man himself to the clerk-typist, the mental worker and the physical worker.

For each person in the stratified random sample make an estimate of where he fits between the two extremes; and express this estimate as a per cent of release of his potential. Then compute the average value of the total number of observations. For the average organization I would predict this average value to come out as about 30 per cent. I would also predict that the group close to the top man would have the highest average value, and the average value would get lower as the organizational distance from the top man gets longer. (Waves into ripples).

Empiricism Not Doing Well

In the military, in business, and

[3] Colonel S. L. A. Marshall, ***Man Against Fire***, William Morrow & Company, New York, 1947. p. 53

[4] Ibid., p. 54

[5] Department of Defense, ***The Armed Forces Officer***, USGPO, Washington, D.C. 1950. p. 178

[6] The Public Administration Review, Spring 1955. p. 75

[7] O. A. Ohmann, ***"Skyhooks" with Special Implications for Monday through Friday***, Harvard Business Review, May-June 1955. p. 34

[8] Ibid., p. 36.

in government it appears that we are not doing so well with empiricism. How much longer can this continue? How much longer can the military afford to provide money and manpower to train, equip, transport, and subsist, six men as a factor of safety to insure that one man will function – leaving the other five to contribute nothing but their presence? When will the organizations in business be able to release the full potential of the individual into the productivity of the organization instead of into the management-labor struggle? What has caused our predicament?

About 50 years ago marks the commencement of the greatest surge of technological and ontological advance that man has ever experienced. The *pater* can no longer hold in his mind the totality of the situation as he could fifty years ago and longer. The dignity and equality of man has become more and more real to an enlightened people; they find it inconsistent with the *paternalism* inherent in the family concept. Technological and ontological specialization has had a rate of increase more geometric than arithmetic; and the need for a place for the specialist in organizational structures is not met from empirical patterns.

The rush of empirical solutions from the concepts of a prior era has so diluted and diffused the meaning of organizational terminology that an intelligent discussion of the subject is difficult without first breaking down very real semantic barriers (and perhaps coining new words to get an agreed precision of meaning.) Words like "organization", "unit", "to organize", "line", "staff", "mission", "function", "management", "teamwork", have become applied during the past 50 years to a multiplicity of empirical patterns developed for a multiplicity of different situations; and they now appear to have been so abused as to have lost their usefulness.

The rapid increase in the size of business organizations has stretched the family concept to the breaking point—and past it to cause failures. Elton Mayo discussed this in connection with a Harvard research group study of a small, rapidly expanding manufacturing concern:[9]

"The control of such businesses was more or less personal or of a *family type;* and it worked sufficiently until requirements increased the total personnel to a figure in the neighborhood of 2,000. Then the lack of systematically ordered procedures showed itself in the sudden emergence of a host of problems that seemed to be person or psychological until close study revealed the source. A *relationship analogous of the family* may be effective for a population of 200 persons; but the lack of definition of executive functions serves almost to create personal uncertainties and errors when the concern is overtaken by extremely rapid expansion."[10] (Italics supplied)

It is the same in military organizations. Especially have our companies (and comparable units) become too large and complex for a family concept, yet the *pater* is still expected to insist on a personal direction and control of his *familia.* Colonel Marshall devoted much on-the-ground study to this problem and cites this incident as representative:[11]

"During the mass interview of one infantry company in the Central Pacific, the statements of all concerned made it evident that one of the sergeants had performed so conspicuously during two days of attack that the progress of his company had pivoted largely around his individual exploits. He had not been recommended for decoration though the facts revealed by the others said clearly that he was deserving of the Silver Star three times over. I asked the company commander why nothing had been done. He frowned his astonishment at the question.

"When the fighting started, he practically took the company away from me," he answered, "He was leading and the men were obeying him. You can't decorate a man who'll do that to you."

Colonel Marshall continues to discuss the problem of company commanders struggling with the family approach to handling their problems; and he concludes that "These were not small men, moved by jealousy. They were puzzled men, who were groping their way through one of the most complex of all human relationships. Someone had failed to counsel them properly".

Who is the someone that failed? Is it not the school of empiricism adhering to the concept of the captain of a past era—the era of the *pater-familias,* the era of the manor and its lord and serfs, the era of the company in the Age of Mercantilism, the era that so carefully coined the word *lieutenant* so as not to detract from the authority of the captain?

That our philosophy of organization for human enterprise has lagged fifty years behind the demands of technology, ontology, and mass production is an oft expressed opinion of leading thinkers who see the problem. Even in 1945, before

[9]**Elton Mayo, *The Social Problems of an Industrial Civilization.* Harvard University, 1945. pp. 87-88**

[10]**Ibid., pp. 87-88**

[11]**Colonel S. L. A. Marshall, op. cit., pp. 61-62**

$75 Million Research Building Begun By Allison

Ground has been broken for the engineering building which will be the center of expanded research and development facilities for advanced types of aircraft engines at the Allison Division of General Motors, Indianapolis, Ind.

Part of the $75,000,000 engineering program announced in March, the new building will bring together under one roof engineering personnel now working in four separate plant locations.

Design plans specify a three-story building containing a total area of more than 270,000 square feet with floor space to take care of an expected work force of more than 2600.

Supporting the activities within the new engineering building are new research and development test facilities already under construction. Phases I and II of the construction program for the component development facilities represent a joint project between Allison and the Air Force. Phase I, which will be completed in April, 1956, will enable testing of individual combustor components for turbojet and turbo-prop engines. Phase II, scheduled for completion in December, 1956 will contain facilities for the testing of compressor and turbine components.

atomic energy, Elton Mayo drew this conclusion for industry:[12]

"Little of the old establishment survives in modern industry; the emphasis is upon change and adaptability; the rate of change amounts to an increasing tempo. *We have in fact passed beyond the stage of human organization in which effective communication and collaboration were secured by established routines of relationship.*"

In the language we are using, he is saying that we have passed beyond the family approach to human organization. The situation is acute. It has a direct bearing on the power of our country to sustain its ideology by force of arms. Organization can be thought of as the catalyst that converts static manpower and raw resources into a national force. Thus, other things being equal, the national power varies directly as the effectiveness of the catalyst—organization. And still with other things being equal, a competitive nation who first finds the solution that lies beyond empiricism will have a superior national power.

To enter upon a new era of automation, atomic energy, atomic battlefields, travel in space—with empiricism as our philosophy of organization is to enter the era blindly. As Lyndall Urwick expresses it:[13]

"But we cannot do without theory. It will always defeat practise in the end for a quite simple reason. Practise is static. It does and does well what it knows. It has, however, no principle for dealing with what it does not know. Faced with a new and unaccustomed situation it can only explore it tentatively—"by trial and error". And we should not forget that in the field of management our errors are other peoples trials. That is to say practise is not well adapted for rapid adjustment to a changing environment. And over the last couple of centuries the speed of technological invention and discovery has been quite unprecedented in man's history, and was and is constantly accelerating. Technological development changes our material environment. Theory on the other hand is light footed. It can adapt itself to changed circumstances, think out fresh combinations and possibilities, peer into the future. That, after all, is its business."

A theory of relativity of matter in 1915 led to the design of a new organizational structure of matter (the reactor) in 1942; and this new structure releases the potential energy in the atom (it was there all the time!) by 3,000,000 times more than we could get before. Previously the best we knew was an empirical organizational structure of matter (molecular) to release only 1/3,000,000 of the potential energy the atom by combustion; and this in the atom by combustion; and this question. Our efforts at improved effectiveness were directed toward improving the efficiency of combustion.

The centuries old "natural" organizational structure of man to release his potential energy into productivity seems to have been in balance with the centuries old "natural" molecular structure of the atom to release its energy by combustion. Is it still in balance?

To parallel the new era in matter: There should be some theory to lead to the design of a new organizational structure of man for human enterprise; and this new structure should release the potential energy in man (there all the time!) much more than we can now get. We now depend upon an empirical organizational structure of man from a family (molecular) concpt to release a fraction of the potential energy in man by the action and reaction of "human relations" (combustion); and this is generally accepted. Our efforts at improved effectiveness are primarily concerned with studying the effectiveness of human relations (combustion)! (Some "poetic license" used to illustrate a point!)

That we are very concerned about the situation is evident from the tremendous rate of increase in the literature of organization and management during the past ten years. But the early awareness of the problem appears to have started around 1900 with Frederick W. Taylor starting "scientific management", the Harvard School of Business getting underway, an Elihu Root seeking an empirical solution by establishing the beginnings of the general staff pattern in the Army. From that time on there has been a steady increase in schools, research, in management magazines, in articles in non-management magazines, in books, and in an awareness in the organizations themselves that something is needed.

But we do not seem to be making adequate progress towards a solution.

No Organizer Satisfied

No organizer is really satisfied with the situation as it is—not when he takes the time to be objective about it. When he stops to examine the "world we live in"[14], and when he sees the order made manifest in the design, construction, operation and maintenance of the organic structure in the organism (with the cell as the basic unit) he wonders why we should have the relative chaos he sees in man-created organ-

[12]Elton Mayo, op. cit., p. 13

[13]Lyndall Urwick, *Notes on the Theory of Organization*, American Management Association, 1952. p. 10

[14]Editorial Staff of Life and Lincoln Barnett, *The World We Live In*, Time, Inc., New York 1955

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izational structures (with man as the basic unit).

When the organizer stops to think of the relativity and order made manifest in the structure of the atom, and repeated in the solar system, and repeated in the millions of solar systems into galaxies, and repeated in the millions of galaxies into the universe (with the atom as the basic unit of it all), he wonders about man's attempts at relativity and order in man-created organizational structures (with man as the basic unit); he sees instability, trial and error, repeated *re*organization —all as a kind of a struggle toward something better, but the model to strive for—no one seems to know.

What steps toward relativity and order have we made; and what seems to be the ceiling that holds us down in our efforts to break through from empiricism up to principle?

Perhaps the most significant step forward was the now famous Hawthorne experiment by the Western Electric Company in close association with Harvard, Massachusetts Institute of Technology, and the Rockefeller Foundation, commencing in 1924. The finding from this experiment that man was not a machine—that his productivity was a function of attitude—set in motion a period of intense activity in the field of human relations—of man with man. But this did not seem to lead into advancing from the family concept of structure. Next we had (and still have) the period of emphasis on research and study into communications—still of man with man. But this has not led into advancing beyond empiricism in structure.

The treatment of structure seems to be held down under a ceiling concept of analogy to the organism; in fact, common usage definitions of an organization are in terms that parallel the structure of the living organism with its basic unit the cell. The organism has one head to direct and control interdependent and interrelated *functions* (digestive, respiratory, circulatory, muscular, nervous . . .) none of which can accomplish a whole mission by itself. The organism analogies and the family concept are parallel.

To recapitulate: The organism with its one head, its functions and its basic unit (the cell) seems to be our model to aid us by analogy in creating a parallel family type structure with its one head, its functions, and its basic unit (man). We stretch the family concept when size and dispersion force it; and we stretch into empirical patterns as trial and error is moulded by the forces in the situation.

Does man *really* think he can create an organism out of individual *man* as the basic unit and give it life by breathing *his* personal ideas into it? The living organism is the creation of a supreme Intelligence; and the purposeful flow of life in the organism remains an enigma even to the biologist. Does man really believe that one mind (the pater) can continue to perceive and express the totality of the situation for the whole organization below him? Is it not presuming a little for one man to think that it is *his* personal energy that energizes his organization to reflect him when the fact is that each individual in the organization has a mind also, and that each of the minds in the organization has as much potential energy to contribute to the organization as the *pater*—if it could only be released from the burden of "personal relations" (as primary) to give that "spontaneous cooperation of a free people" that is the "highest form of efficiency" [15].

Isn't there something in the concepts just summarized that is suspiciously like the *pater* being a "god" of a little world of other men? And, assuming it is there (even though in unawareness) is it not in conflict with the concept of man as free

[15]Credited to Woodrow Wilson, quoted frequently by Bernard Baruch, and recently quoted by President Eisenhower in a nation-wide address.

AFA "Man of Year" Honored by Friends

Arthur C. Storz, Air Force Association "Man of the Year," was honored at a testimonial dinner recently by 500 friends, including some of the nation's most outstanding Air Force leaders.

They came from Washington and across the country to pay homage to a man who has been one of the nation's greatest proponents of airpower for more than 35 years. These included the Honorable David S. Smith, assistant secretary of the Air Force, the principal speaker; Gen. Carl "Tooey" Spaatz (ret.) who was the first chief of staff of the Air Force; Lt. Gen. Charles B. Stone III, deputy chief of staff and comptroller of the Air Force; Senator Roman Hruska and Representatives Robert D. Harrison and Jackson B. Chase of Nebraska.

General Curtis E. LeMay, who heads the nation's Global Air Arm-Strategic Air Command, which has headquarters in Omaha, told the group that Mr. Storz spearheaded civic drives which in the last 10 years have built up SAC's Offutt Field headquarters from an old Indian cavalry outpost of 1880 vintage to a modern, leading Air Force installation. The general, on behalf of the three sponsors of the dinner —the Omaha chapters of the Air Force Association and the National Aeronautic Association and the Omaha Chamber of Commerce—presented a trophy to him in commemoration of the occasion. Mr. Storz is vice president of Storz Brewing Co. of Omaha.

Assistant Secretary Smith, a native Omahan, praised Mr. Storz and said the Air Force is indebted to him for his service to aviation. He called attention to Mr. Storz' work in raising funds to furnish and equip a completely new type of dormitories at Offutt, in making possible new runways there, and his work to help secure a new Headquarters Building.

Mr. Storz, never one to rest on his laurels, seized the occasion to hurl a new challenge to the city. He called Omaha's airport "totally inadequate to handle future traffic and jet transport planes on order by most airlines." He told the group, which included Omaha's top business and civic leaders, that the city is "standing still on this important project" and called for an immediate start on plans for "an airport that will take care of our needs for the next 20 years."

He also said that salaries paid high ranking officers in the services are a "rank injustice." For example, he said General LeMay's pay is about 1/25th or less than that of the president of General Motors, although SAC is three times the size of GM, the largest industrial organization in the world.

and equal—especially in the spiritual sense as President Eisenhower has so often explained.

Thus there is suggested a conclusion—that our empiricism and its patterns has been built upon an erroneous concept of man of a past era, and, therefore, to try to build a theory of organization of man for human enterprise upon the concepts of the past is to try to derive a truth from an error.

In the practical sense too, I can see no way to build an accepted and useable body of knowledge emanating from one general law or truth (as a theory of organization) as long as *man* is used as the basic unit of design. The mind of man resists analysis and is ever changing. Thus a theoretically stable structure conceived in terms of the relativity of individual man is impossible.

I propose that a different basic unit of design is required. (The term basic unit is used in the sense that we have the cell as a basic unit of the living organism and the atom as the basic unit of matter). An idea is impersonal; it is stable; and it is susceptible of analysis. The totality of any situation can be expressed as a nucleus idea and its appropriate related ideas – the whole being in a proper relativity, order and structure.

Theory of Relativity of Ideas

It would be possible, therefore, to have a *theory of relativity of ideas* from which any organization of any size for any purpose could be designed as an idea structure before occupancy by man. If this theory of relativity of ideas had incorporated within it the full dignity (and equality) of man, recognition of the individual, motivation of the mind, and the release of motivated energy into designed channels, then the resultant structure would have built into it the dual requirement of 1) accomplish the purpose of the organization and 2) create and distribute human satisfactions.

Then, as each idea is *given* to an appropriate person selected to energize it, the organizational structure would be constructed with the *ideas governing*. Then, within the great elasticity of the relativity and order of the idea structure, the adjustment and development of human relativity and personalities could "shake-down" into a harmonious adjustment.

The basic unit of the structure (idea) can vary from narrow to broad to fit any situation and any organization for any purpose. The design and operation of the structure can vary from "tight" to "loose"—also to fit any situation and any organization for any purpose. The tempo of the structure can be designed from fast to slow —again to fit any situation and any organization for any purpose.

The above two paragraphs sound like an abstract hypothesis I am sure. And you are wondering about the sequence of steps in the scientific method: observation; formulation of hypothesis; experimental verification; formulation of theory; and test in practical application. Space does not permit the details of these steps; but a general summary is required here to give you some basis for deciding for yourself whether or not a theory of relativity of ideas has enough realness in it to justify reading further!

A spark of curiosity caused by an incident in 1930 became a conviction in 1935 when I was faced with a problem of "how to organize" without precedent. I searched all available sources for some principles to use in solving the problem. I could find none. At that time a conviction was formed that somewhere a principle did exist—a principle that would include in its idea all ideas on organization. A conscious process of observation, formulation of hypothesis and experimental verification was pursued through the next ten years (1935-45); and all during that time accumulated knowledge was being consciously built up towards either reaching or finding the principle. During this time an unusually wide range of "laboratories" (operating organizations) were fortunately available by accident of assignment.

In 1945 my student status at the Naval War College was conducive to concentrated research and study. A commitment to a thesis on organization forced the compression of ideas; and on November 11, 1945 a key concept appeared in consciousness. At the moment the concept appeared it seemed to answer for me all of the thousand and one accumulated questions of the past ten years, simultaneously and instantaneously. At that moment also I could visualize a complete theory of relativity of ideas—one that could be derived from a fundamental truth (principle). From the principle I could visualize a complete set of correlative principles, corollaries, rules, and formulas—all in a relativity, order and structure. Thus it could be taught, learned, and applied by others. But a long road of working through the sequence steps of the scientific method lay ahead.

The "personal" time of the next ten years (1945-55) was wholly devoted to observation, formulation of hypothesis, experimental verification, formulation of theory, and the test of theory in application both by myself and others. Fortunately, one year of "sabbatical leave" became available in 1947-48 in the form of a student status at the Industrial College of the Armed Forces; and again in 1953 a similar opportunity appeared in the form of being a student in the "Management Problems for Executives" course in the School of Business Administration at the University of Pittsburgh.

During the ten years from 1945, eight "laboratories" of a wide variety and range of operating organizations and problems in organization became available to provide for twelve different tests of the application of the theory in twelve different situations. The theory improved in expression in each of the tests, but it was not until near the end of the last test (1953-55) that is assumed an adequate completeness in full relativity, order, and structure.

The most recent test has been referred to as the "Granite City Test"—a short term to describe the testing of the theory in application at the Granite City Engineer Depot at Granite City, Illinois, from January 1953 to July 1955. The test was not started as such; and to the people of the depot it was, initially, just another round of changes they had learned to expect from new commanders operating in the school of empiricism.

Slowly, step by step, the theory gained momentum and acceptance in the 2,500 man industrial type installation (with troops in training) until a few civilians and soldiers were learning to use the principles

and formulas to solve even their social problems in "how to organize" —one good example being the design, construction, and operation of the organizational structure for the annual Depot picnic for about 5,000 people by Mr. John Lerch in the spring of 1955.

Some visitors characterized the "Granite City Test" as the sequel to the "Hawthorne Experiment", of which Stuart Chase wrote in 1941:[16]

"The most exciting and important study of factory workers ever made has been going on for 16 years in the Western Electric Company's Hawthorne plant, near Chicago. If managers of other factories, large and small, were aware of things which this huge experiment in industrial relations has found out, American industry could be made over.

"Efficiency experts have long been trying to find the number of working hours, the manual methods and physical conditions which would give maximum daily output. The researchers at Hawthorne discovered something far more important than hours or wages or physical conditions; *something which increased output no matter what was done about physical conditions.*

"The mysterious something is hidden deep in human nature. Fatigue experts did not find it. Stopwatch boys overlooked it. Managers of factories have known intuitively that it was there, but they have not known what it was. Western Electric tried to find out.... It was not just a 'company job'—it was carried on in close cooperation with M.I.T., Harvard and the Rockefeller Foundation..."

Through 12 test periods of four to 12 months each, the granting and withdrawing of privileges, bettering and worsening working conditions, shortening and lengthening the working hours, were injected into controlled experiments to measure the effect on productivity. But productivity did not behave as a function of privileges and working conditions and hours. In the 12th test period every improvement of working conditions made over a year and a half was taken away. It was assumed that this would reduce productivity. But instead, output jumped to an all-time high. But let us continue in Stuart Chase's own words:

"Because of some mysterious X which had thrust itself into the experiment, the experiment had changed under them, and the group they now had was not the group they had started with.

"This X wasn't in the production end of the factory. It was in the human end. It was an *attitude*, the way the girls felt about their work and their group....

"A factory performs two major functions: the economic one of producing goods, and the social one of creating and distributing human satisfactions among the people under its roof.... If a factory's human organization is out of balance, all the efficiency systems in the world will not improve the output."

° ° ° °

"Underneath the stop watches and bonus plans of the efficiency experts, the worker is driven by a desperate inner urge to find an environment where he can take root, where he belongs and has a function; where he sees the purpose of his work and feels important in achieving it. Failing this, he will accumulate frustrations and obsessions. "Fatigue" and "monotony" are effects of this frustration rather than causes of it. For their neglect of human function of production, managers have paid a high price in strikes, restricted output, and a vast sea of human waste."

° ° ° °

"There is an idea here so big it leaves one gasping."

Thus the Hawthorne experiment showed *what* was needed, but it did not show how to build the mysterious X into organizations. If a theory of relativity of ideas is correct, then it should give the *how* of putting the mysterious X into an organization.

The "Granite City Test" did at least make a step forward in showing *how*, as statistics and testimony we shall exhibit later will indicate.

It is time now to get into the theory: We shall follow the major steps used in working out the design of a new organization in 1954. But of course we shall have to state the steps in terms that are applicable to any organization for any purpose and omit the language that is peculiar to the problem being solved.

But before we go ahead, let us pause a moment and look at some essential background.

The key concept of November 1945 was at a high enough thought level to reveal and govern the solution to the problem of designing, constructing, operating, and maintaining any organizational structure for any purpose. But the key concept was not high enough to reveal a precise statement of *the principle* that included *all* in its idea. In the process of the "Granite City Test" we got closer and closer to it, but it was not until April 2, 1955 that the whole theory fell into place with *the principle* at the top.

The whole system of philosophy was then derivable from one principle in logical, related, and descending orders of abstraction until ideas were reached that could be expressed in formulas; and the formulas could be used by people who had not grasped the theory back of the formulas.

Thus the theory became a specific body of knowledge with an identity of its own. It had a definite relativity, order, and structure from the one principle at the top to the last

[16] **Stuart Chase, *What Makes the Worker Like to Work*, Readers Digest, Feb., 1941.**

Mather Supply Unit Praised

The Local Purchase supply function at Mather Air Force Base was recently named the best at any Air Training Command base.

A certificate of achievement from Training Command officials cited "the excellent turnover of materials at Mather's 'country store' which exceeded 40 percent, much of it 50 percent." It also commended the store for continuous improvement in appearance, operations, and services.

Mather supply officials said much of the success of the local purchase "store" is due to the fortunate location of the base near the large market area of Sacramento and San Francisco which makes possible delivery in a matter of hours. Under earlier supply systems all buying was done at designated materiel "areas," and distribution was therefore much slower than under the local purchase "country store" distribution system.

formula at the bottom; all of the ideas were tied together in a certain way. But a variation in relativity, or the introduction of an inconsistent idea, or the use of expressions reflecting erroneous concepts—any of these could alter the theory so as to change its correct identity. It was therefore necessary to recognize the fact of identity by giving a name to the whole theory.

A search was made of the English language for all possible words that might contain the essential concept, and therefore be an appropriate name; but our organizational language has become so adulterated that none of its words were useable for precise meaning. The three key elements in the theory were then converted into absolute ideas and a search was made for Greek words that expressed the absolute meaning. Three words were found to fit—precisely; they were put together into one word; and out of it came "Atorgenics". Commencing on April 16, 1955 "Atorgenics" was used to designate the particular system of philosophy. The derivation of the name will be explained later on when we get into the theory enough to see the three key elements that caused the name to be formed.

Because of the danger (sometime in the future) of someone attempting to promulgate Atorgenics without understanding it and thus cause the name to be applied to an adulteration, the name is registered in the U.S. Patent Office.

(The next part starts in with Atorgenics, and carries the reader from the top concept step by step on down to the practical approach to the actual design of organization structures with the *idea* as the basic unit. It gives some of the formulas. It shows how the designed structure actually looks in operation and touches upon how it operates. It gives statistics and testimony on the improvements that result from Atorgenics in a 2,500 man organization).

Continued next month

Mayday, the international distress call for radio telephone systems, is derived from the French word "m'aidez," meaning "help me."

Committee Suggests Changes In Army Chemical Corps

Secretary of the Army Wilbur M. Brucker recently approved implementation of a report made by an ad hoc civilian committee on the administration and organization of the Army Chemical Corps.

The Committee was requested to look into all phases of the Chemical Corps operation and organization, and to recommend measures to increase the effectiveness of the Corps in carrying out its important missions.

The major recommendations of the Committee are (1) to appoint an Assistant Chief Chemical Officer in charge of long-range planning and doctrine; and (2) the establishment of three separate commands for Research and Development, Engineering, and Materiel.

Major General Creasy, Chief Chemical Officer, said that he was highly gratified with results of the Committee's work and believes that its recommendations will result in a stronger and more dynamic organization.

Air Materiel Command Ends Personnel Conference

Personnel objectives designed to meet the changing trends in the Air Force build-up, and stimulate employee morale and production were set forth at the Air Materiel Command personnel conference that ended recently.

The speakers emphasized that each of today's objectives is a necessary link in the logistics chain, and must be in harmony with the modern essentials of Air Force support—time and speed.

Explaining the importance of progressive personnel management in Air Force logistics, Brigadier General F. H. Miller, AMC Deputy vice-commander, said that each air materiel area and depot commander looks to his personnel officer for guidance. He urged them to become thoroughly familiar with their own command's functions and AMC's objectives. For example, he pointed out automation, financial inventory accounting, storage and maintenance problems, and disposal.

Colonel Bowman outlined a seven-point AMC personnel program designed to provide employees with a thorough understanding of AMC's mission, and promote high morale and productivity.

The seven points are:

1. Adopt an overseas rotation plan for civilian employees.
2. Strengthen the supervisory work force.
3. Improve qualification standards.
4. Development of a self-evaluation system for civilian personnel programs.
5. Continue emphasis on programs aimed particularly at increasing employees' will to work.
6. Explore, and put into effect if feasible, greater participation of supervisors in classification of positions.
7. Study ways and means for providing better off-base personnel servicing for civilian employees.

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Signal Corps personnel and their families in Headquarters, U.S. Army Europe, have supported two German orphanages for four years.

PRODUCTS

designed to deflate production Costs

As a service to OPERATING DEPARTMENTS and PURCHASING OFFICERS, ARMED FORCES MANAGEMENT will provide you with a selected list of manufacturers' products.

How to Use Armed Forces Management's Library—

Inserted in this issue, a postage free card is provided for your convenience in requesting descriptive and informative literature. This will be forwarded to you, without obligation. Many cost saving ideas are generated by Operating Departments that have referenced information on products available. Purchasing Officials will find this type of information invaluable. All that need be done is: fill in name and address, circle that which will assist you, and drop in the mail.

INTERPHONE FOR INSIDE-OUTSIDE COMMUNICATION ON AIRPLANES

Radio Corporation of America. A new transistorized inter-phone system which weighs less than 15 ounces and can be worn by ground crewmen to provide communication with personnel inside aircraft being serviced or checked has been developed by RCA. The new device offers important savings in space and weight over conventional means for providing inside-outside communication on military planes, since it enables ground personnel to carry equipment normally installed in the aircraft. The transistorized interphone is designed for use with the RCA AN/AIC-10 airborne intercommunication system which is widely used by the Air Force.

For more facts request No. 1 on reply card

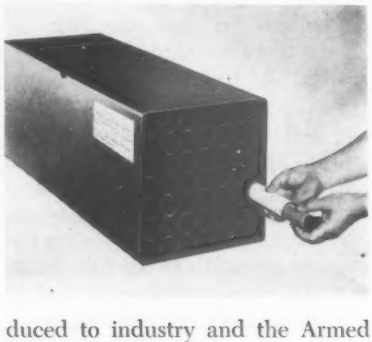
THERMOSTATIC WATER CONTROL

Powers Regulator Company. A new thermostatic water control that can prevent the normal extremes in temperature is being produced by this organization. Compensating instantly for drops or increases in water temperature, this regulator which can be easily attached to most operations, is low in price and guaranteed by its manufacturer.

For more facts request No. 2 on reply card

MULTIROLL FILE UNIT

Roll and File Systems Incorporated (See Cut) The new Multiroll File Unit containing 49 individual tubes of 1¾" diameter or the 25 tube size with 2½" diameter encased in a 200 lb-test reinforced corrugated board container, has recently been introduced to industry and the Armed Forces. It is now possible to file large lay-outs and tracings using this time-proven "mailing tube method" and yet have the material readily available with an index system. Three models, providing tube lengths of 30, 36 and 42 inches, are currently in production. This inexpensive new filing system not only saves time but, complete with an index, is a valuable asset to most installations with a common problem of the storage of this type equipment. Complete information, drawings and prices will be forwarded upon request.



For more facts request No. 3 on reply card

ELECTRIC NUMBERING MACHINE

Roberts Numbering Machine Company. A new low-priced electrically operated numbering machine, precision built with interchangeable numbering heads to automatically number from 1 to 999,999, has recently been announced. Requiring no installation other than plugging into any 110 volt AC outlet, the new machine can be furnished in size 3/32, 9/64 or 3/16 inch sizes. Complete information on this labor-saving and cost-reducing machine is available on request.

For more facts request No. 4 on reply card

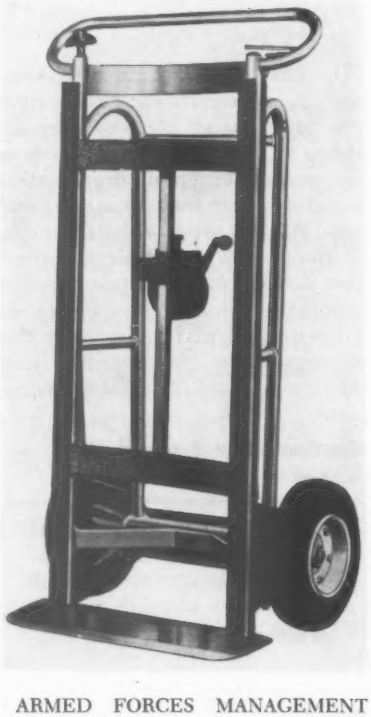
OFFICE FURNITURE AND SUPPLIES

Precision Equipment Company. This leading manufacturer of desks, filing cases and cabinets, shelving, tables and allied office equipment, has a most interesting catalog available to dollar-saving organizations. Major savings are possible with a year-end sale of products designed for office efficiency.

For more facts request No. 5 on reply card

NEW STAIR CART

Valley Craft Products Corporation (See Cut). Does your organization have a daily problem of moving materials and equipment



up and down stairways and ramps? Designated STAIR CART Model 400, this new product equipped with a special rachet mechanism which enables it to roll up stairs step by step as the operator pulls a drive cable, has two wheel safety brakes to enable one operator to handle the heaviest loads. Additional features include a belt reel for securing the load, skid rails for easy loading of trucks, padded frame to eliminate scratching and aluminum construction. Unless you are without this problem, send for the available literature on this low-priced cart which will be of assistance to your installation.

For more facts request No. 6 on reply card

CLOSED-CIRCUIT TELEVISION

Dage Television Division, Thompson Corporation. A free booklet detailing DAGE equipment and installations is available to interested organizations. More and more applications are being reported daily of closed-circuit television in industry and government. Dangerous operations can now be viewed safely and inaccessible devices easily supervised. If you have an application, full information will be forwarded without obligation.

For more facts request No. 7 on reply card

GAS-FIRED UNIT HEATERS

Janitrol Heating & Air Conditioning. Janitrol unit heaters have proven themselves in many military installations to be most efficient and service-free. Designed to give advanced performance, dependable, quiet and economical operation, these inexpensive unit heaters are the answer to industrial and military heating requirements. Your consideration of the available information will reveal why Janitrol has the great preference among leading engineers and architects.

For more facts request No. 8 on reply card

AUTOMATIC TELEPHONE SYSTEMS

DuKane Corporation. Introduction of a series of four flexible, automatic phone systems designed to speed internal communications and relieve switchboard operators of all intra-installation calls recently launched the DuKane Corporation, intercom and sound system pioneer, into the private telephone field. Communication bottle-necks that often cause delays and disruption in vital production and operations, are eliminated with this service. Surveys by DuKane indicate that more than half the phone calls of the average firm or organization are inside its buildings. The new equipment received a rugged baptism of fire recently when cooperating with civil defense authorities, a complete 28-line exchange was installed and survived the recent Operation Cue atom bomb explosion. Full details on all systems will be forwarded your organization upon request.

For more facts request No. 9 on reply card

ELECTRICALLY-HEATED FLOOR MATS

General Industrial Company (See Cut). These safe, economical neoprene rubber mats which throw off a gentle warmth and use less power than a 75 watt light bulb, are

finding applications throughout military and industrial organizations. If your employees are threatening like this this secretary to wear Eskimo-style, fur-lined mukluks, you can increase their efficiency with one of these new warmers for a cost of only $7.95. Excellent results have been obtained on production lines where employees are required to stand on cold floors, and the nominal cost has more than been saved with less absenteeism. Full information and immediate shipments are possible by circling the inclosed product card.

For more facts request No. 10 on reply card

A SYMPOSIUM OF TECHNICAL ARTICLES

Borg Equipment Division, The George W. Borg Corporation. Systems engineers will be particularly interested in a new brochure covering all phases of precision potentiometer design and application. Complete information, graphs and charts covering physical and electrical design characteristics are included. The brochure "A Symposium of Technical Articles" is now available from Borg Equipment Division of The George W. Borg Corporation, Janesville, Wisconsin.

For more facts request No. 11 on reply card

AUTOMATIC COIN CHANGER

Metal Products Engineering Company (See Cut). A completely automatic coin changer has been added to the ever-expanding line of changers called the COIN-MASTER. This simplified keyboard arrangement reduces costly errors and

saves minutes of precious time every day. The coin machine can readily be moved or replaced, and can be loaded or unloaded quickly and easily. When the last coin in a column is ejected, the Coin-Master locks automatically; this avoids "short change" situations. Holding up to $100 in change, this easy-to-operate changer has many applications within your installation.

For more facts request No. 12 on reply card

DELTA DO-IT-YOURSELF CATALOG

Rockwell Manufacturing Company. Something new in home workshop power tool literature—a 12-page full-size tabloid telling would-be beginners step by step just how to go about establishing a power tool workshop.

The photo-illustrated tabloid, published by Rockwell Manufacturing Company's Delta Power Tool Division, follows the story of a

fictitious couple who know nothing about tools but are interested in starting a small shop to save money on various do-it-yourself home improvement projects.

The order in which the couple selects each tool—the reasoning for this order of selection—the tasks each type of tool is designed to perform—all are outlined in careful detail.

A special feature of the new tabloid is four pages of explanation and description of hundreds of special power tool accessories and the specific job each is designed to perform. This section, hi-lighted by graphic illustrations of power tool operations using the various accessories, is believed to be the most compact and comprehensive of its kind ever published.

It is slanted to the real beginner —the man to whom such words as "tenoning," "mitering," "dadoing," and "mortising" may mean nothing at all.

These strange-sounding operations are clearly illustrated and explained in relation to more commonly known terms for the work they accomplish. For example, the mortising text refers to the "drilling of square holes" and the picture shows this particular operation being done on a drill press with the mortising attachment.

For more facts request No. 13 on reply card

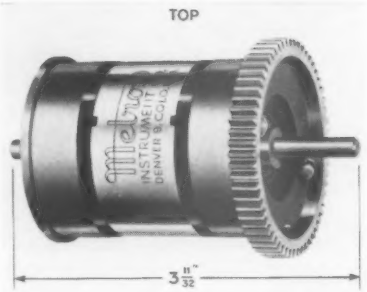
MONRO-MATIC DESK CALCULATORS

Monroe Calculating Machine Company. A dynamic new principle in the new, totally automatic desk calculator, is assurance against obsolescence for years to come. The new compact single keyboard provides functional-color controls. It automatically seeks its own decimal, and is the only American desk figuring machine that directly adds as it multiplies, adds as it divides, and puts aside and remembers intermediate results to apply to final answers. Capable of greatly reducing figure work it becomes an efficient management tool. Complete information is available on request.

For more facts request No. 14 on reply card

MINIATURE DIFFERENTIALS

Metron Instrument Company (See Cut). Metron's new Miniature Differentials are now available at



low cost for differential applications where small size and long life are essential.

These units will combine two rotating inputs to give speed sums or differences and angular sums or differences. They are also ideal for controlling relative speeds, for obtaining exceptionally wide speed ratio between shafts, for shifting phase angles between rotating shafts, and for quickly reversing and changing speeds without disconnecting the power source.

Thirty-four different ratios—from 1:1 to 27:1—provide wide design possibilities. Hobbed and hardened spur gears give smooth operation. And external bearing surfaces are of brass so the unit mounts readily in bushings.

Units with an internal anti-backlash feature are available. They have, *for most purposes*, no backlash. Anti-backlash results from two parallel gear trains spring loaded against each other, thus taking up backlash continuously whether running or not.

For more facts request No. 15 on reply card

HEALTH INSPECTION KIT

Black Light Corporation of America. The Kit provides a modern inspection tool as revealing as a microscope, as easy to use as a flashlight. It utilizes the unusual qualities of black light and fluorescent materials to unmask contamination in many forms.

Most waste food products will show some characteristic fluorescence; spoilage in such foods as eggs, meat, fish, milk products and some fruits and vegetables causes a unique reaction under black light.

Rodents can be tracked down as well as faulty sewage systems and unclean wash room facilities.

Among the materials included in the Public Health unit are a black light lamp for use on both AC and DC, carrying case and batteries, invisible crayons, ink, paint, tracer paste, aerosol powder and dust gun, and mechanical pencil with invisible leads. Priced at $62.90.

For more facts request No. 16 on reply card

ACTIVEAIRE ELECTRIC TOWEL

Activeaire Devices Incorporated. A new Electric Hand Dryer, the Model L, listing at $99.95 is conceded by research experts to be the most effective, versatile and economical machine of its type ever built. Listed by Underwriters Laboratories and meeting G.S.A. specifications, the Model L scents the hands and room and ultra-violet radiation kills air-borne bacteria. Attractive and easily installed, the new model is automatic and guaranteed for one year by the manufacturer. We will be pleased to send you without cost complete information how you can modernize your facilities and safeguard the health of your employees.

For more facts request No. 17 on reply card

ADHESIVES LABELS

Avery Adhesive Label Corporation. A brand new concept in labeling is revolutionizing this time-consuming chore. The new method using a neat, self-adhesive, permanent-gripping label is versatile, and has many applications. They offer additional advantages of 10 upper border colors for swift identification, and centering and marginal guides for rapid typing.

For more facts request No. 18 on reply card

STEEL BUILDINGS

Luria Engineering Company. A new 28-page illustrated catalog describing its unique system of standardization in building construction has been published by this leading designer and producer of standardized steel structures for industry and government. Entitled "Buildings by Luria", the new catalog presents a complete description of the company's buildings, and will be of interest to installation Engineer and Operations officers.

For more facts request No. 45 on reply card

CONTOURA-CONSTAT PHOTO-COPIER

F. G. Ludwig Incorporated. A completely new transfer process

photo-copier has recently been developed that allows the use of a less light-sensitive than ordinary copy paper under usual office lighting conditions. This moderately-priced photo-copier is designed to copy anything printed, and will reproduce pages directly from a book or ledger. Completely portable, the Contoura-Constat has achieved wide acceptance within industry and military installations.

For more facts request No. 19 on reply card

CONCRETE JOINT SEALER

Presstite Engineering Company. A new 6-page Bulletin is available to Installation Engineers describing a new concrete joint sealer that is resistant to the solvent action of jet fuels and able to withstand the blast of engine shock and impact. This cold-applied sealer, Presstite No. 99, complies with all requirements of Federal Specification SS-S-170, 23 May 1955.

For more facts request No. 20 on reply card

ELECTRONIC SCALE

Control Cells Corporation. A new electronic scale, portable and about the size of the familiar bathroom scale, that is capable of weighing up to 45,000 pounds has recently been developed. Powered by an automobile battery, this revolutionary low-cost scale makes weighing heavy objects a simple process and right on the job. In a recent test, a house weighing 346,600 pounds was weighed in less than 90 minutes by this new mighty-mite. Complete descriptive information is available from our library.

For more facts request No. 21 on reply card

SPARK PLUG MANUAL

AC Spark Plug Division, General Motors. "Service Tips on Spark Plug Removal and Installation," is the title of a new manual recently published. A complete guide with pictures and tips on the proper servicing of spark plugs, makes this free manual a necessity in the library of every maintenance officer.

For more facts request No. 22 on reply card

WALKIE-WORKLIFTER

Economy Engineering Company. With a lifting capacity of 1,000 pounds, this welded steel lifter complete with batteries and built-in charger, is now within the price range of every installation. Capable of passing through narrow aisles and doorways, this easy to operate lifter is equipped with double safety features for accident-free operation. Can you afford not to investigate this man-saving equipment?

For more facts request No. 23 on reply card

BELCO REPLACEMENT FAUCET STEMS

Miller Manufacturing Company. Leaking compression type faucets, lost water and excessive maintenance costs are gone forever with the installation of Belco ball bearing replacement stems, complete with bibb washers. To insure perfect replacement, stems are made to order from a sample sent in by the purchaser—housing authority, military installation or institution. Stems include the Belco valve seat unit. The moment the rubber faucet washer contacts the seat its turning action stops and the ball bearing takes up the load, exerting nonturning pressure on the washer seat. The bibb washer is only under compression and is not subject to cutting or grinding action.

For more facts request No. 24 on reply card

COMMON STOCK INVESTMENT

Hamilton Management Corp. Through Hamilton Funds, Inc., a managed common stock investment fund, this firm offers lump sum or monthly investment plans to fit any budget. Interested persons can inquire without obligation. Firm recently declared another quarterly dividend.

For more facts request No. 25 on reply card

MUTUAL INVESTMENT FUND FACTS

Brown, Madeira, and Company. This company, specializing in mutual investment funds, will send, without obligation, facts about conservative, middle-of-the-road, and aggressive types of investments and mutual funds.

For more facts request No. 26 on reply card

FREE STORAGE LAYOUT SERVICE

Equipto Division of Aurora Equipment Co. Free layout service to assure better storage facilities for less money is available from Equipto. Take advantage of valuable advice on the number and kind of storage units to buy, furnished with complete floor plans and elevation drawings.

For more facts request No. 27 on reply card

ALL-PURPOSE HAT AND COAT RACKS

Vogel-Peterson Company. Snap-over hooks to replace hangers give double capacity in same area. Checkerette racks can be set up or taken down in a minute without nuts, bolts, or screws, are strongly built of welded heavy gauge steel.

For more facts request No. 28 on reply card

VISUAL CONTROL BOARD

Wassell Organization, Inc. Produc-trol not only schedules but automatically checks with time, line, and color control, has low original and upkeep cost.

For more facts request No. 29 on reply card

Household Moving Takes to Air

Inauguration of the first household moving service by air between the United States and Alaska is announced by Frank A. Payne, president of Lyon Van & Storage Co., whose company completed the arrangements, working in cooperation with Westair, and Wheaton Van Lines in the east.

The new Skyvan service, now in operation, provides a fast air van method of moving these goods, loaded in planes just as they are in vans. Transit time between Seattle, the point of departure in the continental United States, and Alaska, is just eight hours, as compared with an average of five to twelve days otherwise. This is of particular interest during winter months when ice conditions make moving by water or highway difficult, and in many cases, impossible.

The U. S. Department of Defense, and branches of the armed forces have approved the service, and information on Skyvan moving has been supplied to military installations.

A limited number of leatherette bound copies of ARMED FORCES MANAGEMENT, Volume 1, October 1954 through September 1955, are available at $10.00. Those organizations and individuals who have already ordered Volume 1, need not reorder. It is requested that orders be addressed to Librarian, ARMED FORCES MANAGEMENT, 208 South Second Street, Rockford, Illinois.

Management Training

(*Continued from page* 17)

tion and training conceived by and in use at the Army Supply Management Course.) This activity is intended to keep the Army abreast of new ideas and improved procedures developed by the Course. It is a dynamic policy which will tend to avoid stagnation.

A talent hunt was instituted throughout the technical services for officers with background and experience most likely to make them successful instructors in this entirely different kind of Army institution. There exist few criteria for the selection of case method instructors, but the selections were fortuitous. All of the instructors are college graduates, many holding Master's Degrees from educational institutions in the field of business administration. Several of the officers have had experience with the case method of instruction and all have broad backgrounds in their own technical services. This training, plus their experience as students of the first class, has prepared them as well as possible for their future role as instructors.

The establishment of the course was even more farseeing than has been indicated thus far. Additional duties and tasks were conceived for the faculty. They will conduct research within their own spheres of interest in Army depots and other supply installations. There they will find material for new cases, for the renovating of cases presently in use, and will attempt to develop new doctrine and perhaps new procedures which may have Armywide implications. They will, perhaps, conduct short seminars of advance supply management information for small groups of officers within the continental limits of the United States and at other service schools. There are still unexplored areas in which these officers may utilize their experience and capabilities to aid in streamlining the ponderous machinery of supply.

On accomplishing its major aims, the Army Supply Management Course will perform two important functions. First, it should help create efficient functioning of the supply system, with resultant improvement of relations with both business and industry. Second, it should provide for more economical use of our national resources, which in time of war will be more limited than in peacetime. It might well be a major factor in the successful conduct of any future conflict this country may be forced to undertake.

Army Purchases RCA-Developed 'Bizmac,'

Purchase by the United States Army of a $4,000,000 electronic data-processing system—"Bizmac"—that converts months of business paperwork into minutes of "push-button" operations was announced recently by Frank M. Folsom, President, Radio Corporation of America, and Brig. Gen. Nelson M. Lynde, Commanding General, U. S. Army Ordnance Tank-Automotive Command, Detroit, Michigan.

Announcement of the purchase marks the first detailed public disclosure of the "Bizmac" system. Developed by RCA over a five-year period, the new system is specifically designed for standard business operations.

Delivery of the "Bizmac" system to OTAC-Detroit is now underway and scheduled for completion by the end of this year. It will be utilized for electronic stock control of replacement parts for military combat and transport vehicles.

Said General Lynde, "The system can perform in minutes inventory control procedures which now take months for the Army's vast Tank-Automotive supply program. The program involves control of replacement inventory of more than 200,000 different categories of parts, ranging from nuts and bolts to fan belts and engines, needed to keep military vehicles operative.

"The 'Bizmac' system will be used to provide speedy and accurate information on inventories, to determine in minutes the current supply of any item at any Ordnance depot in the nation, and to compute forecasts for future requirements."

The RCA electronic data-processing system, Mr. Folsom pointed out, incorporates approximately 200 units of 13 different but fully integrated types of electronic equipment. The system is designed to perform electronically most of the voluminous clerical procedures involved in OTAC's world-wide stock control program. With lightning speed and accounting accuracy, "Bizmac" will:

1. File on a single reel of magnetic tape, 10½ inches in diameter, more than 2,500,000 characters—or all the information contained in approximately 8500 of OTAC's parts inventory records.
2. Electronically "read" and "write" at the rate of 10,000 letters or digits per second; operate at a tape speed of 80 inches per second.
3. Add, subtract, multiply and divide with electronic speed, and "remember" specified information indefinitely for recall in a few millionths of a second.
4. At a speed of 600 lines a minute, print OTAC's inventory procurement recommendations, shipping orders, and other business paperwork involved in the operation of the parts control program.

US Treasury Checks To Army, Air Force Now Mailed Overseas

U.S. treasury checks now are being mailed directly from stateside finance centers to army and air force dependents in countries where military payment certificates are used.

In the past, army and AF finance officers overseas have paid dependents in MPC or limited depository checks, which were not negotiable for U.S. dollars.

The Navy has been paying overseas dependents with treasury checks for the past few years.

Finance officials here said the new policy will eliminate much red tape and result in savings of more than $6,000 monthly.

Formerly U.S. finance centers sent monthly authorization sheets overseas stating how much money each dependent would receive, sometimes slowing up the payment of allotments.

The new system does not mean that dependents can use U.S. dollars overseas. However, it is expected to eliminate inconveniences previously encountered when some dependents returned to the U.S. before having an opportunity to cash their most recent allotment checks.

Major Departments of the United States Air Force

Strategic Air Command: controls all very heavy, very long range bombardment, reconnaissance, and fighter groups. Its purpose is to carry out intensive and sustained long-range bombardment and escort fighter operations, alone or in cooperation with land or naval forces, or both. SAC's principal weapons are giant new bombers like the B-47, the B-50, and the B-36. It can bomb an aggressor in his own backyard, smashing his attack at its point of origin and demolishing his capacity for war.

Tactical Air Command: with the latest type jet fighters, attack bombers and troop carriers, TAC's mission is to seek out and destroy enemy aircraft in the air and on the ground . . . to strike at enemy troops and ground communications . . . destroy enemy supply concentrations . . . and to re-supply our own concentrations. It trains and equips fighter groups for independent, specialized operations throughout the world. TAC also carries out photo reconnaissance and tactical troop-carrying missions.

Air Defense Command: is charged with the development of sufficient forces to defend the continental U.S. against enemy air attack. Through its three major forces, the Eastern, Central, and Western Air Defense Forces, it controls the fighter units, the aircraft control and warning system, and the other elements of the air defense system. ADC has established a nationwide air-raid warning system, employing volunteer Ground Observers to augment the radar net.

Air Research and Development Command: is directly responsible for all the research and development that keeps the USAF ahead in aviation. ARDC's technicans and engineers are continuously probing new fields, jet propulsion, guided missiles, electrons, radar, rockets, cosmic rays, and atomic energy; and they develop new equipment of all kinds from blue print to final testing to assure our continued supremacy in the air.

Air Materiel Command: is the Quartermaster Corps of the USAF. AMC buys, tests, distributes and maintains all aircraft and accessories used by the Air Force throughout the world. To accomplish this tremendous task AMC must know the industrial potential of the country, the strategic locations of all types of factories and their ability to deliver needed materials. In addition to aircraft, AMC must be ready with hundreds of thousands of spare parts to keep all USAF equipment in constant service.

Air Proving Ground Command: functions as a tactical testing laboratory for the Air Force. Tactical doctrines, battle techniques, and training procedures are developed. Equipment is reviewed, tested and evaluated. The Air Proving Ground Command provides the USAF with full assurance that its weapons and equipment provide the air strength needed to discourage any aggressor.

Air Training Command: trains pilots, air crews, and ground maintenance men from the start of basic training into all the highly specialized fields of the USAF. For the men of the Air Force must be specialists. They are taught by experts using the finest known training aids. ATC also supervises unit training for the three combat Commands. Through two subordinate headquarters, the Flying Training and Technical Training Air Forces, it monitors virtually all USAF schools.

Air University: supervises such USAF institutions as the Air War College, Air Command and Staff School, Air Tactical School, Special Staff School, and the USAF School of Aviation Medicine. In charge of nearly all advanced USAF courses, the Air University crystallizes and passes on to the field the latest Air Force doctrines.

Military Air Transport Service: with bases around the world, MATS affords the Armed Forces with nontactical personnel and freight service. It provides swift, efficient service in every area of occupation. Vital services like Air Rescue, Flight Service, Airways and Air Communications, Air Weather Service, and Air Resupply and Communications are important functions of this round-the-world Command. MATS is also charged with air evacuation of the sick and the wounded. It contributes to flying safety and the promotion of international air transportation by cooperating with privately owned commercial airlines and aviation service companies.

Headquarters Command, USAF: is a holding, accounting, and disbursing agency for Air Force personnel assigned or attached to medical and field extensions of Hq, USAF, including the Air Attache system, RAF and RCAF exchange programs, Air Force recruiting, USAF Foreign Military Missions, Mutual Defense Assistance Programs, and USAF personnel on duty with Army and Navy medical facilities throughout the world. It provides flight proficiency training for air mobilization trainees in the D. C. area and aircraft for proficiency flying of Air Force personnel located there.

United States Air Force Security Service: handles highly classified and sensitive documents. It is the policy of this Command to release no information on its activities or functions.

Continental Air Command: is charged with the responsibility of maintaining a backlog of training personnel for national emergencies. This task includes the training and supervision of the Air Force Reserve, the Air Force ROTC, and the Civil Air Patrol. It monitors the training of the Air National Guard and even directs the "Explorer" program of the Boy Scouts. ConAC's administration of the USAF civilian components continues up to the time they are called for active duty.

Overseas Air Commands:

Alaskan Air Command, Anchorage, Alaska.
Caribbean Air Command, Balboa, Canal Zone.
Far East Air Forces, Honshu, Japan.
Northeast Air Command, Newfoundland.
United States Air Forces in Europe, Wiesbaden, Germany.

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Safe Flight Instrument Corporation.....Cover 3
The Safe Flight Speed Control System enables safe utilization of full wing lift for perfectly controlled minimum speed landing.

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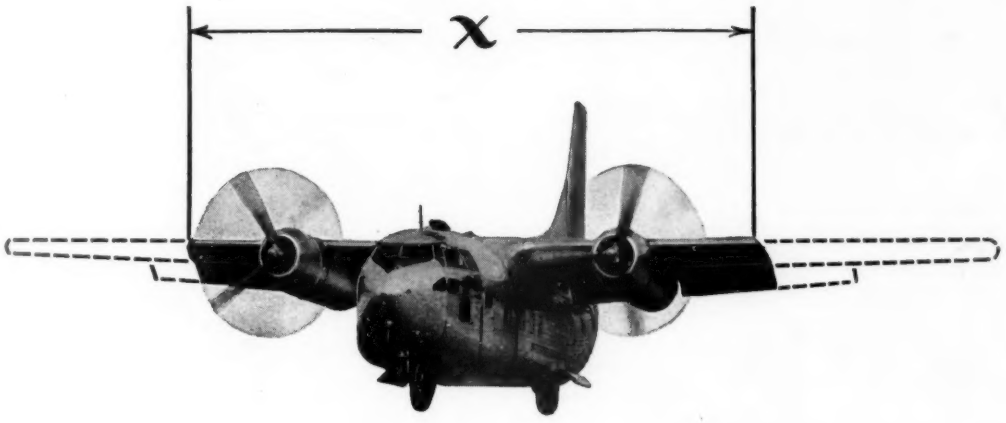
The Checkerette all-purpose hat and coat racks with snap-over hooks which replace hangers and double capacity are offered by this firm. Checkerettes go wherever needed, can be set up or taken down in a minute without nuts, bolts, or tools, are made of welded heavy gauge steel.

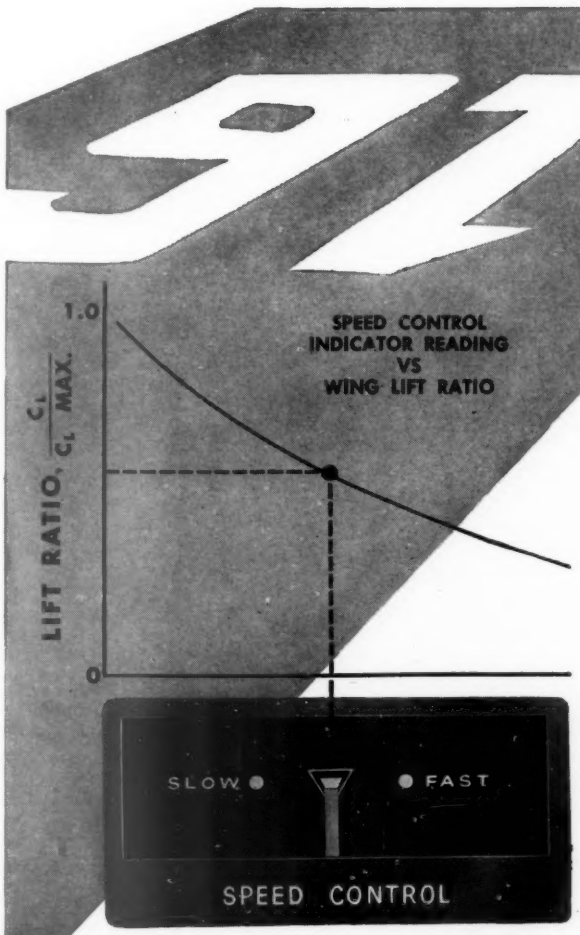
Wassell Organization, Incorporated.....Page 19
An effective tool for effective management is offered in Produc-trol, visual control which not only schedules but automatically checks time, line, and color control.

The Gjoa, the tiny sloop in which Captain Roald Amundsen pioneered the Northwest Passage, is preserved as a memorial in San Francisco's Golden Gate Park.

The strength of the Volunteer Reserve in the U.S. Marine Corps was 20,407 officers and 90,227 enlisted men (including officer candidates) during FY 1954.

How much* of the available WING LIFT are YOU using?





Statistics show that less than one half of the available wing lift is being used for the average landing.

The Safe Flight Speed Control System enables you to utilize safely the full wing lift by zeroing-in a perfectly controlled minimum speed landing every time. Very significant advantages are achieved for both jet and propeller driven type aircraft. The Speed Control System presents lag-free rate and trend information which is easy to follow for precise elevator and power control. It automatically compensates for every configuration, weight, and power condition. Approaches, regardless of turbulence or weather conditions, are made precisely, more safely, and with less effort. This system also insures best take-off climb performance.

The Safe Flight Speed Control System is now standard equipment on all Fairchild C 123B aircraft.

**Unused wing lift means longer runway requirements, lower payloads, excessive brake and tire wear, and possibility of overshoots.*

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WHITE PLAINS, NEW YORK

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